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INTERNATIONAL ABSTRACT OF SURGERY

JULY, 1923

ABSTRACTS OF CURRENT LITERATURE SURGERY OF THE HEAD AND NECK

HEAD

Rand, C. W.: Osteoma of the Skull: Report of Two Cases, One Being Associated with a Large Intracranial Endothelioma. *Arch. Surg.*, 1923, vi, 573.

A close relationship between hyperostosis or osteoma of the skull and intracranial endotheliomata is becoming more generally recognized. Cushing believes that at least 25 per cent of cases of proved endothelioma present demonstrable thickening of the overlying bone.

Mallory states that these so-called endotheliomata arise from the arachnoid villi rather than from the dural endothelium. In fact, he denies the existence of a dural endothelium, maintaining that the under-surface of the membrane is lined with fibroblasts rather than with endothelial cells. He therefore suggests the term "arachnoid fibroblastoma" as preferable from a morphological standpoint. He contends that since these tumors derive their blood supply from the dura, they may invade the skull and scalp but never invade the brain tissue proper.

Rand reports two cases: the first, a case of hyperostosis with an underlying endothelioma which filled and grew from both sides of the longitudinal sinus, and the second a case of simple osteoma of the skull with no true intracranial growth.

The first patient was a man 31 years of age who had always been athletic but had never received any definite skull injury. The first manifestation of disease was a small, hard, bony lump on the crown of the head near the junction of the sagittal and coronal sutures. A year later, following an acute cold, the lump was found to be larger than before, and a month later, after exposure to the sun, a convulsion occurred. Mental symptoms then became manifest, and in a period of five months there were five convulsions. A diagnosis of Jacksonian epilepsy was made. At operation, an enormously thickened piece of bone was removed. The patho-

logic diagnosis was benign osteoma showing irregular growth of the bone.

After the operation the patient was much improved, but about five months later had another convulsion, and in the following nine months, nine attacks at irregular intervals. He was able to work, but suffered from mental disturbances. Bromides were administered during this interval. At examination after the last convulsion the patient was found very nervous and irritable and complained of headache. Neurological examination was essentially negative except for the eye grounds which showed blurring of the disc margins, most marked on the right side. The X-ray demonstrated a bony elevation with tremendous thickening of the skull near the coronal and sagittal sutures.

In a two-stage operation a large osteoma lying directly over the longitudinal sinus was removed. Convalescence was rapid and the patient returned to his work but was kept under the influence of bromides and luminal. He continued to be irritable and nervous, and about a year and seven months after the second operation had another convulsion which was severe and generalized. This was followed by two more about a month apart. Mental disturbances then became more prominent. Physical and neurological examinations were again negative except for blurring of the optic discs. Ventriculography demonstrated absence of air in the left ventricle and a distinct notch on the upper surface of the anterior horn of the right ventricle. This was attributed to a large growth projecting into each hemisphere, especially on the left side.

When the skull was again opened a tumor was found growing from both sides of the longitudinal sinus, involving the sinus and apparently invading the brain proper. On gross examination the neoplasm appeared to be a sarcoma. No line of demarcation could be made out. Sections were made and the wound closed.

The microscopic sections revealed an endothelioma of the meninges. A week after the last operation

the wound was again opened and the tumor removed *en masse* with 10 cm. of the longitudinal sinus. The growth was encapsulated and weighed 135 gm. A fascia lata graft was placed over the skull defect and the wound closed.

At present the patient's mental symptoms have improved; he no longer uses sedatives, and is free from epileptic seizures. He has gained in weight and is again working in his former capacity.

The second case was that of a man 48 years of age who entered the hospital with a complaint of epilepsy and severe frontal headaches of four years' duration, attacks of mental derangement, weakness of the left arm and leg, and difficulty in articulation.

Examination revealed marked mental agitation. The eye grounds showed overfilling of the veins and blurring of the disc margins, particularly on the right side. Slight ataxia of the upper extremities was present. There was definite weakness of the muscles of the left hand. The deep reflexes were increased on the left side of the body and there was a positive Babinski on the same side. The X-ray revealed a dense shadow in the right frontal region, about 2 cm. in diameter, above the middle of the orbit. The Wassermann reaction was negative and the blood and urine showed nothing abnormal.

At operation the tumor was removed with a small margin of normal skull. It was necessary to open the top of the right orbit. A dural flap was turned back and the brain inspected but no evidence of an endothelioma was found. The operation was followed by uneventful recovery.

Three months later the patient was free from headache and had had no further epileptic seizures. His mentality was clear, the nervousness was less, and the paresis of the left side had practically disappeared.

DENNIS H. KELLY, M.D.

Wheeler, W.: Traumatic Intracranial Aerocele.
Lancet, civ, 529.

In a case diagnosed as fracture of the anterior fossa of the base of the skull there was an escape of air and cerebrospinal fluid when the dura was incised. A distinct respiratory movement of the frontal lobe was noted. Another interesting feature in this case was the early dilatation of the pupil on the affected side, in the absence of compression and before the onset of meningitis.

Though the patient was benefited to some degree by the operation, a fatal meningitis developed. Autopsy revealed a fracture extending through the right side of the ethmoid bone and involving the sphenoid. A probe passed through the fracture appeared at the anterior nares.

Traumatic intracranial aerocele is most commonly caused by fracture in the frontal region involving the sinuses, but may follow any compound fracture with a dural tear. The air is always intra-dural. Its presence may not be suspected until it is revealed by the X-ray.

Reference is made to ten cases reported by Grant. In cases of aerocele found immediately following

injury operation should be performed and an attempt made to close the dural tear; if several days have elapsed, conservative treatment allowing time for absorption is advisable.

This condition is of interest in that it constitutes another certain diagnostic sign of fracture of the base of the skull.

V. E. DUDMAN, M.D.

Phemister, D. B.: The Nature of Cranial Hyperostosis Overlying Endothelioma of the Meninges.
Arch. Surg., 1923, vi, 554.

The old interpretation of cranial hyperostosis overlying endothelioma of the meninges as a non-tumorous new-bone formation caused by stimulation of the overlying bone by the meningeal tumor disregarded the fact that the bone becomes infiltrated by tumor. Phemister reports two cases and gives the microscopic findings.

In the first, that of a man 40 years of age, general symptoms of brain tumor had been present for about three years, but the hyperostosis in the right occipital lobe was first discovered at autopsy. Microscopic examination of the hyperostosis and the portion of skull from which it sprang showed infiltration by endothelioma of the same character as the intradural tumor, but the new bone about the surface of the external layer was definitely non-tumorous. In the region of most marked growth, tumor cells were largely absent. Bone formation from tumor cells was nowhere to be seen.

The second case, that of a man 31 years of age, presented a large, oval, painless swelling of bony hardness in the left frontoparietal region. There was entire absence of nervous symptoms. A roentgenogram showed a shadow in the region of the tumor, which was most dense in its central portion. A faint, but definitely radiating shadow extending beyond the outline of the old calvarium was cast by the new bone. A probable diagnosis of meningeal endothelioma with overlying hyperostosis was made and operation performed. The thickened skull was removed, the dura opened, and a broad, flat tumor found attached to the inner surface. A roentgenogram of a section of the calvarium from which the hyperostosis sprang showed the new bone radiating from both the inner and outer surfaces of the old bone; the inner layer showed plainly that ossification had proceeded from the inner table toward the dura. Microscopic examination showed tumor infiltration of the calvarium and of the new bone springing from it. The tumor was an endothelioma like the primary growth. There were, however, numerous areas of new bone which contained little tumor; the external hyperostosis contained the least amount. The examination left no doubt that the new bone was not tumor.

The findings in these two cases suggest that the primary tumor arises inside the dura from cells connected either with its inner lining or with arachnoidal villi which enter it. As the tumor grows, its cells penetrate the dura and invade the overlying bone, where they exert a stimulating influence re-

sulting in the formation of a hyperostosis consisting of two intermixed portions, namely, endothelial tumor and a newly formed non-tumorous bony framework. The hyperostosis is an instance of osteoplastic invasion of bone by a mesoblastic tumor originating outside the skeleton. Invasions of bone by all other non-bony mesoblastic tumors are osteoclastic. Analogous changes are produced by carcinoma metastases in bone; while usually osteoclastic, they may, in certain instances, as when from carcinoma of the prostate, stimulate new-bone formation and ossify throughout their substance.

A third case is reported, which differs from the others in that it included local bone destruction. The subject, a woman of 69, had had for twelve years a bony enlargement in the frontoparietal region and, during the last two years, symptoms of cerebral involvement. Roentgenographic and microscopic examinations showed that an endothelioma of the dura had produced, first, hyperostosis, then erosion of the calvarium from within outward, and, lastly, a layer of unossified tumor external to the hyperostosis.

FLORENCE CARPENTER.

EYE

Frazier, C. H., and Houser, K. M.: Unilateral Exophthalmos: A Clinical Report of Five Cases. *Surg. Clin. N. Am.*, 1923, iii, 281.

Unilateral exophthalmos is not rare. Five cases varying widely in pathology are cited to illustrate the diversity of the causes of this condition. The first case was that of a man of 40 years who had unilateral blindness with nausea and vomiting followed by ptosis. An operation on the eye revealed no tumor, but the nausea and vomiting ceased. The cause of the protrusion could not be determined.

The second case was that of a woman with an acute subperiosteal abscess near the orbit. The exophthalmos was cured by evacuating the abscess and cleaning it with Dakin's solution.

In the third case, that of a woman 41 years of age, a slight laryngitis was followed in a week by severe headache, fever of 107 degrees F., and exophthalmos. A diagnosis of cavernous sinus thrombosis was made, but not verified as autopsy was not allowed. Other conditions were ruled out by exploratory operations.

The fourth case was that of a 36-year-old woman who had had severe pain in and above the left eye intermittently for six years, occasional vomiting, exophthalmos, and involvement of the cranial nerves. A diagnosis of flat lesion at the base of the brain was made. As operation was not allowed, the diagnosis was not verified.

The last case was that of a boy with exophthalmos accompanied by a thrill which developed six weeks after he struck his head in a fall. The thrill was relieved by closing the internal carotid artery, but the pulsating exophthalmos persisted.

MARCUS H. HOBART, M.D.

Wright, R. E., and Barnard, T. W.: The Importance of Radiography in Doubtful Cases of Optic Atrophy, with Special Reference to Pituitary Disease. *Brit. J. Ophthalm.*, 1923, vii, 123.

Wright and Barnard report five cases of optic atrophy with pituitary changes. Two causes of error in the diagnosis of optic atrophy due to hypophyseal involvement are the frequency of optic atrophy of indefinite etiology and the high percentage of cases which show few glandular symptoms when the pituitary is involved. The authors believe that in all cases of optic atrophy in which the etiology is not definite an X-ray examination of the region of the sella should be made.

VIRGIL WESCOTT, M.D.

Wescott, C. D.: Some Practical Points in Refraction. *Am. J. Ophthalm.*, 1923, vi, 204.

A routine method of examining and correcting ametropia which is based on thirty-five years' experience is here outlined. All the work is done by appointment, and adequate time is demanded. The history is taken, but only the essential facts are noted in the record. The external eye is examined and the vision determined. The fundus is examined through the small pupil. A mydriatic is then used, regardless of the patient's age, the fundus is re-examined, and a retinoscopic examination is made.

The ophthalmometer is used in all cases. Then, after a few minutes of rest, the refraction test is done. Before the patient leaves the office, eserine salicylate is used to reduce the pupil. A post-cycloplegic test is made two days later and the accommodation is measured in both young and old, both eyes together and separately.

In examining under atropine, two drops of a 1 per cent solution are instilled in each eye three times daily until ordered discontinued. The subjective test is repeated daily until the results are the same on two succeeding days.

VIRGIL WESCOTT, M.D.

Griscom, J. M.: Headache from the Ophthalmological Standpoint. *Pennsylvania M. J.*, 1923, xxvi, 359.

Since Mitchell and Thompson called attention to the relation between eye strain and headache, no study of a case of chronic headache is complete without a refraction under cycloplegia. Not all headaches are due to eye strain, and in the study of each case it must be borne in mind that the etiology of headaches is not so simple as is sometimes believed. Persons with toxæmia are more likely to suffer from eye strain than normal persons. On the other hand, small uncorrected errors of hyperopic astigmatism may be the cause of functional nervous disorders. While it is not possible to state the percentage of headaches due to eye strain, errors of refraction have a place in the vicious circle of cause and effect, and their elimination is important.

VIRGIL WESCOTT, M.D.

Heitger, J. D.: Some Observations on Eye Lesions of Nasal Origin. *South. M. J.*, 1923, xvi, 218.

By reporting six cases, Heitger calls attention to the intimate relationship between diseases of the eye and nose. He emphasizes the importance of distinguishing between the suppurative and non-suppurative diseases of the nose and accessory sinuses. The study of ocular lesions is complete only if a careful study is made of the posterior ethmoid region. X-ray examination of the sinuses has proved unreliable and has often led to operative interference which was not justifiable. VIRGIL WESCOTT, M.D.

Fernando, A. S.: Report of a Case of Melanosarcoma of the Conjunctiva. *Arch. Ophthalm.*, 1923, lii, 168.

Fernando reports the removal of a melanosarcoma of the conjunctiva. As vision was only slightly affected, the patient refused to allow removal of the eye. Two years later he returned with generalized tumor masses in the skin and complaining of headache, dizziness, and ascites. The tumor masses were melanosarcoma. There was no recurrence of the tumor in the eyeball. VIRGIL WESCOTT, M.D.

Reeder, W. G.: Tuberculin as a Therapeutic Agent in Certain Forms of Keratitis. *Illinois M. J.*, 1923, xliii, 241.

Reeder gives in some detail the histories of five cases of phlyctenular disease of the cornea in which tuberculin was used. He does not claim that all of these were tuberculous but all of them presented symptoms of phlyctenules. The diagnostic dose of old tuberculin was 1 mgm. In every instance a local, a focal, and a general reaction were obtained within forty-eight hours; a negative phase in which the eye became definitely worse for a few days was followed by a positive phase which went on to cure or distinct improvement. In some cases several doses of 1 mgm. were given, and usually there was no eye flare-up following the repeated doses.

In commenting Reeder makes this statement: "Focal activation must have its negative stage followed by a positive stage if therapeutic results are to be obtained. Lesions actively in the negative stage may not be benefited by protein injections." In this connection he cites the case of a young man who was given large doses of old tuberculin every two weeks for the treatment of tuberculous glands. Both eyes developed superficial ulcers but these cleared up after the treatment was stopped.

In Reeder's opinion, the treatment is specific.

THOMAS D. ALLEN, M.D.

Verhoeff, F. H.: A Case of Mesoblastic Leiomyoma of the Iris. *Arch. Ophthalm.*, 1923, lii, 132.

In none of the few reported cases of myoma of the uveal tract was evidence presented proving conclusively that the tumor was a myoma.

The author's case is of interest chiefly because it was the first in which a tumor of the iris was demonstrated to be a myoma by special staining.

The long spindle-shaped appearance of the cells, the typical rod-shaped nuclei, the tendency of the cells to occur in bundles with nuclei arranged in rows, and the presence of fibrils coursing along the cells and their terminal processes, as shown by Mallory's phosphotungstic hæmatoxylin stain, left no doubt as to the nature of the growth. In sections of a number of spindle-cell sarcomata of the choroid and ciliary body examined, no fibrils were found in relation to the tumor cells proper, but fibroglia fibrils were demonstrated in the connective-tissue stroma.

Another important difference between myoma and spindle-cell sarcoma lies in the fact that myoma cells are truly spindle-shaped whereas the cells of a uveal spindle-cell sarcoma terminate in, or send off laterally, several ill-defined irregular processes which anastomose with neighboring cells and thus form a definite syncytium. That the tumor in the author's case was benign was evident from the following facts:

1. Although a large portion of the growth was left in the anterior chamber at the first operation, it did not increase appreciably in size in a period of sixteen years or involve the structure at the filtration angle.

2. The original tumor arose from the surface of the iris by a small constricted base, a point of difference from sarcoma that might prove of clinical value.

3. The original tumor had not invaded the iris stroma.

4. There was no mitosis.

In a normal eye, smooth muscle is derived from the pigment epithelium of the iris (dilator and sphincter pupillæ) or the uveal stroma (ciliary muscle). Since the tumor described arose from the anterior surface of the iris near its root, and since it was entirely unpigmented and nowhere connected with the iris muscles of pigmented epithelium, it seems probable that it originated from stroma cells of the embryonic uvea, possibly from misplaced cells which ordinarily would have taken part in the formation of the ciliary muscle.

C. CORBIN YANCEY, M.D.

Benedict, W. L.: Tumors and Cysts Arising Near the Apex of the Orbit. *Am. J. Ophthalm.*, 1923, vi, 183.

Small tumors may exist in the posterior part of the orbit for years, growing very slowly and interfering only slightly with ocular rotation and vision. The earliest symptom in such cases is protrusion of the globe, or proptosis. This may precede visual disturbances by several years, and disturbance of motility by several months, depending on the size of the tumor. Next to proptosis, œdema of the lids is the most common symptom. Swelling of the lids is usually greatest when the tumor overrides the globe in the superior and nasal quadrants. This sign may serve to indicate the most probable location of the tumor.

The following operation is suggested for tumor of the soft tissues in the orbit:

The soft parts should be cut down to the bone about 6 mm. above the superior orbital rim. The periosteum around the margin of the orbit, and the peri-orbita on the superior and nasal sides should be elevated and the contents of the orbit depressed and retracted until a finger can be easily inserted almost to the apex. The orbital contents may then be palpated, and even a small tumor felt anywhere within the orbit. The peri-orbita should then be incised nearest the location of the tumor and the mass removed by blunt dissection by small scissors or forceps, with minimal mutilation of the orbital structures.

The Kroenlein operation is distinctly valuable for removing tumors within the muscle cone when it is desired to save the globe. The contour of the face and orbit, however, often renders the operation difficult as the lateral wall of the orbit may be rather thick and, when turned back, allow little additional room for work.

Eight cases of orbital tumor arising from the optic nerve or its sheaths are reported. In three cases the tumor was located in the right orbit, and in five cases in the left. Good vision was retained in the eye of the affected orbit in two cases, but vision was lost in two cases and reduced to 6/30 or less in four cases. The average proptosis was 7.5 mm., and the duration of proptosis from two months to two years. Papilloedema of 1 diopter or more, limited to the eye of the affected orbit, was present in four cases, and optic atrophy in two cases. The fundus was negative in two. The tumor was removed by the Kroenlein operation in three cases, by the direct frontal route in four cases, and after enucleation of the eye in one case. There were four endotheliomata, three gliomata, and one neurocytoma in the group. Good results were obtained in six cases. In two cases a brain tumor was found later. In two cases in which the tumor was removed by the Kroenlein operation the globe was preserved, but in one of these the removal of the eye was necessary eight months later because of phthisis bulbi. In the other eye, a slight enophthalmos resulted, but there was no change in the size of the globe or restriction of its motility.

Goldenburg, M.: Glaucoma Surgery. *Illinois M. J.*, 1923, xliii, 219.

Goldenburg has done the iridotaxis operation for glaucoma for about five years. In examining some of his earlier cases he was highly gratified with the results.

The conclusions drawn with regard to the procedure are as follows:

1. Drainage takes place into the subconjunctival spaces.
2. A lowered tension is retained for a long period.
3. The operation is easy to perform and without danger.
4. Other procedures can be resorted to if necessary.

THOMAS D. ALLEN, M.D.

EAR

Fraser, J. S.: The Pathological and Clinical Aspects of Deaf-Mutism. *Laryngoscope*, 1923, xxxiii, 177.

Fraser suggests that instead of dividing cases of deaf-mutism into congenital and acquired, they be classified more scientifically into: (1) those due to an error in development (constitutional, developmental or congenital deaf-mutism), and (2) those due to trauma or inflammatory conditions (acquired or inflammatory deaf-mutism).

These major divisions may be further divided as follows:

1. Congenital or developmental deaf-mutism:

A. Endemic or cretinic deafness (Siebenmann's type). Most of the subjects are complete cretins. They show only sound-conduction deafness. The chief pathologic changes are in the middle ear. Some observers find the inner ear normal, while others find degenerative changes in Corti's organ, but only slight change in the nerve and ganglia. Opinions as to the etiology of the condition vary.

B. Sporadic congenital deafness: (1) aplasia of the whole labyrinth (Michel's type); (2) cases in which both the bony and membranous labyrinths are affected (Mendini's or Alexander's type); (3) congenital malformations affecting both the cochlear and vestibular apparatus; and (4) sacculocochlear degeneration (Scheibe's type).

It is suggested that hereditary deafness and otosclerosis are to be regarded as different forms of one and the same pathological process.

Castex is quoted as stating that in his experience deaf-mutism is usually due to changes in the cortical hearing area and much less often to changes in the ear. He believes the cortical changes are due to meningitis which is sometimes intra-uterine.

2. Acquired or inflammatory deaf-mutism, the pathology of which is the pathology of labyrinthitis occurring in intra-uterine or post-fetal life.

A. Deaf-mutism due to trauma following fracture of the cranial bones, which involves the labyrinth on both sides.

B. Deaf-mutism due to labyrinthitis following middle-ear suppuration.

C. Deaf-mutism due to labyrinthitis following purulent meningitis. The meningitis may occur during intra-uterine or post-fetal life. Post-fetal meningitis is the most frequent cause of acquired deaf-mutism. The majority of cases are due to epidemic meningitis, measles, scarlet fever, "congenital" syphilis, or labyrinthitis due to osteomyelitis or mumps.

Congenital deaf-mutism occurs with equal frequency in both sexes. Acquired deaf-mutism is much more frequent in males.

Apparently about 12 per cent of deaf-mutes have parents who were related before marriage. Direct inheritance of deaf-mutism is rare. On the other hand, if both parents are deaf-mutes from birth, 26 per cent of their children will be deaf-mutes. Sta-

tistics collected from the literature show that of cases of the acquired type of deaf-mutism, 36 per cent were due to epidemic meningitis, 16 per cent to scarlet fever, 10 per cent to measles, 10 per cent to pneumonia, 11 per cent to syphilis, 4 per cent to trauma, 3 per cent to whooping cough, mumps, and typhoid fever, and 2 per cent to influenza and pneumonia. Congenital syphilis is judged to be the cause of from 2.5 to 18.6 per cent of the cases of the congenital type.

The functional examination of deaf-mutes consists in testing the cochlear apparatus and the vestibular apparatus.

Itard's classification of deaf-mutism is as follows: Group 1, conversational voice heard at six feet; Group 2, raised voice heard close to ear; Group 3, vowel hearing; Group 4, loud noises heard, e.g., rattle, trumpet, whistle; and Group 5, total deafness.

Group 5 can be excluded at six months. Group 3 can be satisfactorily examined only after the second year of age, and Groups 1 and 2 at the age of 4 to 5 years.

Alexander states that in cases of deaf-mutism in which the history is doubtful we may assume that the condition is congenital if the static labyrinth is excitable.

W. B. STARK, M.D.

Jarvis, D. C.: The Effect of Small Doses of Roentgen Rays in Certain Forms of Impaired Hearing. *Am. J. Roentgenol.*, 1923, x, 201.

McCoy, J.: Treatment of Defective Hearing by Small Doses of X-Rays. *Am. J. Roentgenol.*, 1923, x, 203.

Jarvis uses Wetherbee's technique: a 7-in. gap, 5 ma., a 10-in. distance, and one-minute treatment time. In the method used by McCoy, that proposed by Stokes, the patient is seated 30 in. from the target and the rays are applied in turn to the regions of the right ear, the left ear, the occiput, and the open mouth in a direction toward the pituitary gland. A 110-volt current is used with a 4-in. spark gap and from 5 to 10 ma. The lateral exposure lasts from ten to thirty seconds, the posterior exposure from ten to twenty seconds, and the anterior exposure from five to fifteen seconds. In the anterior exposure an opaque shield with a perforation 3 in. in diameter is held in front of the eyes. The treatments are given two or three times weekly for three to six weeks.

Jarvis states that cases with throat symptoms responded best to the use of the roentgen rays, the results being due probably to the action of the rays on the lymphoid tissue. Tinnitus also was markedly benefited.

McCoy reports the results in forty-five cases treated with the roentgen ray as follows:

Otitis media catarrhalis chronica: greatly improved, nine; slightly improved, nineteen; no improvement, seven.

Otitis media purulenta chronica: greatly improved, none; slightly improved, two; no improvement, none.

Otitis media purulenta residua: greatly improved, one; slightly improved, one; no improvement, none.

Otosclerosis: greatly improved, two; slightly improved, two; no improvement, two.

McCoy made the same observation as Jarvis relative to the relief of tinnitus.

With regard to the effect of the X-ray, McCoy believes there must be an absorption of small-cell infiltration in the eustachian tubes and possibly at the terminals of the auditory nerve, and perhaps also a stimulation of the nerve. Whether or not there is penetration to the pituitary gland is unknown, but an alteration in this gland was suggested in two cases by a change in the blood pressure.

O. M. ROTT, M.D.

Boyd, E.: The Management of Discharging Ears in Children. *Canadian M. Ass. J.*, 1923, xiii, 175.

The author draws attention to the danger to the hearing in cases of discharging ear, and gives instruction for the proper handling of acute cases and the prevention of the chronic condition.

If an acute condition does not subside in from one to three weeks after proper incision of the drum, one of the following conditions should be sought and if found given proper treatment:

1. A poor general condition.
2. An inflammation in the nasopharynx associated with the presence of adenoids, or chronic rhinitis with hypertrophied or diseased tonsils.
3. Concomitant inflammation of the mastoid antrum and cells.

OTTO M. ROTT, M.D.

McCarthy, M. F.: The Therapeutic Problems of Acute Middle Ear Infection. *Kentucky M. J.*, 1923, xxi, 140.

The author opens his discussion of the therapeutic problems of acute middle ear infection by stressing the importance of measures to prevent such infection.

Because of the influence of pathologic conditions in the nose and throat on ear infections, the first requisite in prophylaxis is to put the nose and throat in the best possible condition before infection develops. Foremost in this program comes removal of the tonsils and adenoids.

After the nasal infection develops, no fluids or ointments should be introduced into the nose, and the patient must exercise care in blowing the nose.

After the acute symptoms of the nasal infection have subsided, the tenacious mucus in the nose may be partially dislodged by a bland ointment or oily spray.

If middle ear infection develops in spite of these precautions, it is of great importance to recognize it at the earliest possible moment. This can be done only by routine examination of the ears during any of the acute general infectious diseases.

As soon as an ear infection has been discovered, and before the ear drum has bulged outward, the best therapeutic agent is heat applied by means of

irrigations every three to four hours, followed by the instillation of warm glycerine containing 1 per cent phenol and the external application of heat.

During this time, daily inspections should be made and the drum incised if there is any evidence of bulging or if the pain and fever increase.

Three conditions in which myringotomy may be delayed with safety are described as follows:

1. Tympanic membrane red but not showing a fluid line or bulging. Only moderate impairment of hearing.

2. Tympanic membrane red and showing fluid line evidently of a serous character; hearing moderately diminished; drum only slightly bulging; low temperature curve; moderate pain.

3. Tympanic membrane covered or distorted with small serous blisters or hæmatomata; hearing moderately diminished; moderate pain; low temperature curve.

Myringotomy should be performed under general anæsthesia except in the cases of adults who are not nervous and those of phlegmatic children.

Following myringotomy, the ear should be irrigated with boiled water, boric solution, or 1:8,000 or 1:10,000 bichloride of mercury solution, preferably the last. At least 1 qt. of solution should be used and given from a fountain syringe $1\frac{1}{3}$ to 2 ft. above the ear. The patient should then be put to bed, the bowels moved daily, alkaline therapy given, and the nose and throat treated. The mastoid should be examined frequently, and the signs and symptoms of other complications should be borne in mind.

O. M. ROTT, M.D.

NOSE

Carter, W. W.: The Value and Ultimate Fate of Bone and Cartilage Transplants in the Correction of Nasal Deformities. *Laryngoscope*, 1923, xxxiii, 196.

Carter's experience has been confined to the transplantation of autogenous bone and cartilage in the human subject. He has not studied the microscopical changes occurring in these tissues after their implantation to any great extent but has kept some of his patients under observation for many years, and by making physical and X-ray examinations at intervals has found out what final clinical results may be expected and what happens to autogenous bone and cartilage when they are transplanted into the nose.

His clinical cases appear to show that bone is formed by the so-called peri-osseous osteogenetic layer of the periosteum, the cells of which are protected and limited in their growth by the connective-tissue layer of the latter. This envelope is analogous to the limiting fibrous capsule which separates from surrounding structures all highly specialized tissue, such as the liver, kidneys, etc.

In none of his cases has there been an overgrowth of bone, the growth being here as elsewhere regulated by functional demands and the hereditary limits of growth for the area. If the transplanted tissue lies

passive and performs no function, it is absorbed, even though it was well received by the host and originally established vascular connections.

In a case in which the tissue was killed by improper handling before it was introduced, there was almost complete disappearance of the transplant after the operation.

When it is necessary to build up the bridge of the nose to any extent, it is far better to introduce several thin pieces of bone than one piece of considerable bulk.

Bone and cartilage are used to replace their respective tissues. The implanted tissue usually consists of two-thirds bone and one-third cartilage, and is obtained from the eighth or ninth rib, at the costochondral junction.

In the author's opinion differences in results are to be explained by: (1) the inclusion with the transplant of more or less of the peri-osseous osteogenetic layer of the periosteum; (2) infection at the time of the operation; (3) injury to the transplant in handling or from heat, antiseptics, etc.; and (4) differences in the tissue metabolism of the host.

CARL R. STEINKE, M.D.

Jobson, G. B.: Headache from the Standpoint of the Rhinologist. *Pennsylvania M. J.*, 1923, xxvi, 362.

In recent years practitioners have come to recognize the fact that intranasal and accessory sinus diseases are a frequent cause of obscure headaches and neuralgias. According to Dintenfuss, 90 per cent of cases with headache not diagnosed and called nervous affections are of nasal origin, and according to Tilley, 6.8 per cent of the entire mass of population have accessory sinus disease.

Jobson calls to mind the fact that the trigeminal nerve is the great sensory nerve of the nose and face, the ophthalmic and superior maxillary divisions with the vidian nerve being the nerves of common sensation of the nose. As the nasal ganglion, the center of sensory nerve distribution to the nose, receives its sensory roots from the superior maxillary division of the trigeminal, its sympathetic branch joins the superior cervical sympathetic. The nasal ganglion situated in the sphenomaxillary fossa sends branches to the sphenoidal and ethmoidal cells, the orbit periosteum, the mucosa of the nose, the roof of the mouth, the soft palate, the tonsils, and the nasopharynx, and is in close relationship to the sphenoid, the posterior ethmoid, and the maxillary sinus. When these cavities contain pus the ganglion is sometimes separated from them by only a thin wall of bone and diseased membrane.

The anterior part of the nasal cavity is supplied by the anterior ethmoidal branch of the ophthalmic division of the trigeminal. The study of nasal headaches resolves itself into a study of abnormal conditions of the nasal cavities and their adnexa which irritate the nerves supplying them. The irritants may be mechanical (pressure) or chemical (toxin from pus). One of the simplest nasal conditions

causing headache is pressure of the middle turbinate against the septum due to a septal spur or deviation of the septum. When there is congestion of the middle turbinate, a feeling of tightness in the nose and a supra-orbital headache are produced. Congestion of the turbinate may be caused by coryza, dust, pollen, or pus from the frontal sinus.

Sluder's "vacuum frontal sinus headache," due to closure of the frontal sinus without suppuration, usually has its primary origin in hyperplasia of the structures near the infundibulum and hiatus semilunaris; the pain is less severe than that of frontal sinusitis. The symptoms are inability to use the eyes for close work, which is not relieved by treatment of the eyes, and tenderness at the upper and inner part of the orbit at the attachment of the superior oblique. There is no pus in the nose, no blindness, and no change in the globe, the eye condition being in the nature of asthenopia. The treatment consists in opening the nasofrontal duct.

Pain in antral disease is due to the same causes as that of frontal sinusitis. The headache is frequently occipital, and usually there is tenderness over the canine fossa. The diagnosis is verified by the X-ray findings, the presence of pus in the nose, and exploratory puncture. Headache and pain from the sphenoid and posterior ethmoid are usually referred to the occiput, the deep temporal, and the parietal regions of the side affected. Headache from anterior ethmoidal disease may be frontal or located between the eyes.

The treatment of all sinus suppuration consists of drainage and ventilation.

The symptoms of Sluder's "nasal ganglion neuritis" are those of a more or less severe coryza or a post-ethmoidal sphenoidal empyema followed by pain beginning at the root of the nose, around and in the eye, the upper jaw, and the teeth, and extending back to the temple and about the zygoma to the ear, but always most severe back of the ear, and from there extending to the occiput and neck, possibly to the shoulder, and in severe cases to the arm and hand. With this neuralgic syndrome there is a sympathetic syndrome in the nature of a hyperæsthetic rhinitis or hay fever. The application of cocaine to the mucosa over the nasal ganglion gives immediate temporary relief. Sluder's treatment consists in the application of 2 per cent silver nitrate solution over the ganglion. In obstinate cases he injects into the ganglion $\frac{1}{2}$ c.cm. of 5 per cent phenol and 95 per cent alcohol. He also treats the adjacent sinuses.

In hyperplastic sphenoiditis there may be a multiplicity of pain symptoms because of the intimate association of many nerve trunks in the surrounding region. The symptoms are similar to those produced by all of the other sinuses. The condition is characterized by thickened mucosa, localized inflammation, with sometimes polyps and cysts. The treatment is drainage and ventilation.

Jobson concludes by mentioning the case of a girl 12 years old who had constant and severe pain over

the right frontal region which was found to be due to pinching of the supra-orbital nerve by two pieces of bone which had failed to unite to form the supra-orbital foramen.

GUY L. BOYDEN, M.D.

MOUTH

Brown, G. B.: Infection and Inflammation of the Investing Tissues of the Teeth and Their Relation to the Maxillary Sinus. *Kentucky M. J.*, 1923, xxi, 149.

The author states that pyorrhœa has its beginning in a gingivitis which may be due to serumal calculus deposited on the root of a tooth and a low-grade infection. If the gingivitis which precedes it were more frequently treated in time, many teeth would be saved from extraction.

In some cases there is as much as $\frac{1}{2}$ in. of bone between the teeth apices and the antrum, in others there is only a very thin shell-like bony partition, and in others the processes extend well up into the antrum and when seen from within the antrum have a honeycomb appearance.

Infections of the tissues around the apex may travel to the antrum by direct extension by necrosis of the bone and by the lymph and the blood streams.

Cases of infection of the antrum of Highmore resulting from the extraction of teeth may be divided into three groups: (1) those in which the dental roots lay within the antrum and on extraction left a fistula through which the infection entered from the mouth; (2) those in which the root extended to, but not through, the periosteum and mucosa of the antrum, the soft tissues became infected after extraction, and a probe inserted for diagnostic purposes accidentally penetrated the cavity of the antrum; and (3) those in which the wall and lining of the antrum were penetrated by the extraction of the tooth.

Infection does not occur in all cases of perforated antrum, but when food is forced through an open fistula it is practically certain to develop. This condition will tend to keep the sinus open and retard healing. When drains are inserted, a permanent fistula usually results as the edges of the sinus become lined with epithelial tissue.

A fistula following extraction should be closed as soon as possible. If the antrum is infected, an opening should be made through the nose to promote drainage.

JAMES C. BRASWELL, M.D.

Berry, J., Clayton-Green, W. H., Pinch, A. E. H., and Others: Various Methods of Treating Cancer of the Tongue. *Lancet*, 1923, cciv, 438.

The methods of treating cancer of the tongue were the subject of a discussion at a meeting of the Medical Society of London.

After emphasizing the importance of early treatment of tongue lesions and the excision of all doubtful ulcers, etc. for microscopic examination, Berry stated his belief that in advanced cases an external or submaxillary operation offers the best chance for

relief. Berry does not approve of procedures which split the cheek or jaw. In discussing the nature of the disease he stated that it is essentially a local one with very little tendency to form distant metastases, but affects the cervical lymphatic glands early. Early free removal of the primary growth with removal *en bloc* of the nearest lymphatic glands offers hope of permanent cure, but if the growth originated in the posterior part of the tongue, the deeper cervical glands (especially the post-pharyngeal glands) which are soon involved, cannot be removed *en bloc* and therefore a permanent cure cannot be expected. Berry doubts whether the so-called "block dissection," with removal of the jugular veins and sternomastoid, was ever worth doing. It is seldom necessary for cases in which the growth is situated on the anterior part of the tongue, and he believes it is generally useless for advanced cases in which the growth is situated posteriorly. Moreover, he believes it probable that unsuccessful attempts to dissect out affected glands merely favor the spread of the disease. The class of cases which he has dealt with have been mainly cases of cancer of the middle and posterior thirds of the tongue.

For diathermy Clayton-Green claimed these advantages: (1) It is possible by this means alone to destroy the tongue as far back as the epiglottis by an operation through the mouth, and (2) there is no danger of the implantation of cancer cells in the operation wound. A disadvantage is that the procedure causes a septic slough. The slough becomes septic, however, only after an interval during which the lymphatics become sealed off. Clayton-Green had only one serious case of sepsis among sixty in which diathermy was applied within the mouth.

Pinch described his experiences in the treatment of cancer of the tongue at the Radium Institute. Of about 600 such cases, about 580 were inoperable when first seen, and 300 could be described only as appalling. While the use of radium was beneficial, it cannot be claimed to have effected a single cure at the Radium Institute. However, Pinch stated that he knew of one case apparently cured by radium, that of a physician who refused operation for a small growth on the tip of the tongue which had been confidently diagnosed as carcinomatous by two surgeons. The patient treated himself by applying to the growth a small tube containing 10 mgm. of radium for one hour daily for three months. Pinch's usual practice in the use of radium is to bury several tubes in the growth for several hours. On the rare occasions in which he has seen operable cases he has invariably passed them on to a surgeon. In his opinion, there is very little difference between the results of excision by the knife and those obtained by diathermy.

Gordon-Taylor stated that he has been driven by his results to perform more and more radical operations for cancer of the tongue. He now performs a bilateral block dissection followed at a later period by the removal of the tongue by diathermy. This

operation, which he had been practising for only a few years, has already given better results than the more limited operations he performed previously, for of the patients he operated on before 1914 all but one had a recurrence within twelve months, whereas several of those subjected to the more extensive operation have survived for three years. Gordon-Taylor does not hesitate to remove portions of the jaw if it is involved. Not infrequently, the operation results temporarily in considerable oedema of the face.

Clogg pointed out that recurrence after operation for cancer of the tongue only rarely develops in the mouth. He therefore gave block dissection a trial, but had no improvement in his results as recurrence took place in the neck under the upper part of the sternomastoid muscle in the region of the apex of the mastoid process and the posterior belly of the digastric. He now makes a special attack upon this area by dividing the sternomastoid close to its upper attachment, but stated that as yet he is unable to claim any improvement in results from this procedure. He regards the outlook as hopeless and the case as inoperable if the glands are adherent to the muscles or fasciæ, or if they are cystic.

CARL R. STEINKE, M.D.

THROAT

Moore, R. S.: Report of a Case of Safety Pin in the Trachea. *Laryngoscope*, 1923, xxxiii, 212.

The author reports the case of a patient with persistent hoarseness, chronic pharyngitis, and frequent attacks of sore throat. Laryngoscopic examination revealed a white body just below the cricoid cartilage. X-ray examination showed an open safety pin in the trachea close to the larynx. Removal was followed by entire relief of the hoarseness.

NECK

Harries, D. J.: The Influence of Intestinal Bacteria upon the Thyroid Gland. *Brit. M. J.*, 1923, i, 553.

As the basis for this article Harries accepts the following theories:

1. Exophthalmic goiter is due to the excessive production of thyroxin.
2. Diffuse parenchymatous goiter is an attempt to produce a sufficient amount of thyroxin for the needs of the body through compensatory hypertrophy of the gland.
3. In myxœdema there is failure of the gland to produce the necessary amount of thyroxin.

It has recently been shown by Kendall that thyroxin, the active principle of the thyroid gland, is a tri-iodo tri-hydro derivative of tryptophane. Kendall investigated the factors controlling the supply in the diseases mentioned.

Theoretically, we should find that in exophthalmic goiter the gland is well supplied with tryptophane, that in parenchymatous goiter the supply is inadequate, and that in myxœdema the supply is

very inadequate or the gland is unable to utilize the supply available.

With regard to the influence of intestinal bacteria the author believes that a coliform type of bacillus, an indole producer, may obtain predominance in the intestine and exert a definite influence on the rate of growth of various other bacteria. He therefore draws the following conclusions:

1. Exophthalmic goiter is due to the excessive absorption of tryptophane from the intestine, and this in turn is traceable to the absence of the indole producers from the intestine.

2. The absence of indican from the urine indicates the absence of indole producers from the intestine.

3. In exophthalmic goiter the early disappearance of indican from the urine is an unfavorable prognostic sign.

4. Operative surgery has a definite place in the treatment of exophthalmic goiter. In medical treatment much can be done by suitable dietetic measures.

5. Diffuse parenchymatous goiter is characterized by an excess of indican in the urine, suggesting excessive destruction of tryptophane. If this excess gives place to a diminution or complete disappearance of indican, it suggests that the case is assuming the exophthalmic form.

6. Myxœdema is due to atrophic changes in the thyroid gland, which loses its capacity for dealing with the circulating tryptophane, whether that substance is excessive, deficient, or normal in amount. The disease is thus compatible with the presence or absence of urinary indican.

MORRIS H. KAHN, M.D.

Bircher, E.: Iodine Therapy in Endemic Goiter and Its History (Die Jodtherapie des endemischen Kropfes und ihre Geschichte). *Schweiz. med. Wchnschr.*, 1922, lii, 713.

The author gives the history of the use of iodine for goiter, and especially emphasizes its dangerous effects, described as iodism, thyroidism, and iodine Basedow's disease, which finally led to the warnings of Kocher and Krehl against the use of iodine. He then sums up the cases of such injury observed by him. In these there was one death. In conclusion he attacks the old Chatin theory that a deficiency of iodine is the sole cause of goiter. KOCHER (Z).

Kerr, W. J., and Rusk, G. Y.: Acute Yellow Atrophy Associated with Hyperthyroidism. *Med. Clin. N. Am.*, 1922, vi, 445.

A certain degree of jaundice is occasionally observed in the terminal stages of thyrotoxicosis. The mechanism of its production has not been explained. It seems improbable that the condition has any relation to cardiac decompensation and consequent passive congestion, and there is no evidence to indicate that it is due to blood destruction. Proof that the liver is at fault because of extensive destruction analogous to acute yellow atrophy has

not been recorded in clinical cases so far as the authors are aware. The etiology of acute yellow atrophy of the liver is obscure, and there has been much discussion as to whether it should be considered a pathologic entity.

The authors report a case of severe hyperthyroidism in a man 39 years of age. Acute symptoms had been present for three months before his admission to the hospital. All the classical symptoms excepting exophthalmos were present, and the basal metabolic rate was 78 per cent above normal. Radium was inserted into the gland.

After three months of treatment in the hospital and at home, during which time there was some improvement, a bilateral partial lobectomy was done under gas anesthesia. For twelve days the condition was satisfactory. Then nausea and vomiting occurred and rapidly increasing jaundice appeared. The temperature remained low and the pulse became rapid. The urine contained bile. On the third day after the development of these symptoms the patient became semi-comatose and died after an attack of dyspnoea, cyanosis, and rapidly failing pulse.

Autopsy made two hours after death showed hyperplastic goiter which had been treated by partial thyroidectomy; a surgical incision well healed; diffuse cardiac hypertrophy; hypertrophy of the thymus; acute yellow atrophy of the liver and generalized icterus; acute hyperæmic splenic tumor; parenchymatous degeneration of the kidneys; and emaciation.

The authors refer to the work of Hashimoto who made a histologic study of the heart in experimental hyperthyroidism in albino rats. Following toxic doses of thyroid, Hashimoto discovered marked parenchymatous degeneration of the liver in 50 per cent of the animals killed in the early stages and in 73 per cent of those found dead at later periods.

STANLEY J. SEEGER, M.D.

Enderlen and Hitzler: Recurrent Goiter (Ueber Kropfrezidive). *Beitr. z. klin. Chir.*, 1922, cxxvii, 526.

The authors designate as cases of recurrence those in which the enlargement reappears on the side operated upon. Among 795 cases subsequently examined, there were 231 true recurrences and 124 false recurrences (an increase in the lobe left intact). In a comparison of the reports of different authors it will be found that the number of recurrences varies widely. This is due to the different circumstances and views of the compilers. The number of cases, the method of operation, and the time of the subsequent examination (Brunner observed a recurrence after thirty years) are also of importance.

Ligation of the arteries alone is not sufficient. Hemistrumectomy is warranted only when it is not desirable to remove the entire mass at one time. Enucleation is also unsatisfactory. In the clinic at Heidelberg there were seventeen recurrences in

thirty-one cases. The value of resection by the Mikulicz technique is variously reported: while Reinbach and Kausch saw scarcely any recurrences, Kocher and Roux believed the prospects of permanent cure following this procedure were slight. The enucleation introduced by Kocher gives a much better prognosis, but in the Heidelberg clinic there were 163 recurrences in 263 cases. Ligation of the arteries with the operations named appears to offer more favorable prospects.

The authors believe that the factor of chief importance is not so much the method of operation as the type and structure of the goiter. The parenchymatous goiter has the highest rate of true recurrence (79 per cent). To prevent recurrence, removal to another district or cautious iodine prophylaxis is recommended. VOLLHARDT (Z).

Delannoy, E., and Dhalluin, A.: Metastatic, So-Called Benign Goiters: Latent Thyroid Carcinoma Producing Metastases (Les goitres bénins dits "métastatiques" cancer thyroïdien latent à métastases.) *Arch. franco-belges de chir.*, 1922, XXV, 1047.

This article is based on seventy-one cases, one of which came under the authors' observation. The authors conclude that the metastatic so-called benign tumors of the thyroid are really malignant growths because clinically they produce metastases and have a fatal evolution. Histologically the evidence is entirely in favor of malignancy. The contribution adds one case to a controversy existing since 1875. LOYAL E. DAVIS, M.D.

Brunin and Vandeput: Regional Anæsthesia of the Neck and Upper Extremity: A Critical and Complete Review of Methods (Les anesthésies régionales du cou et du membre supérieur.) *Arch. franco-belges de chir.*, 1922, XXV, 1098.

Following an exhaustive review of the methods of inducing anæsthesia of the neck and upper extremity, the authors state that in their opinion, injection of the brachial plexus at a point above the clavicle is preferable to paravertebral, axillary, or subclavicular injections. The article includes several tables giving the innervation of the skin and muscles of the regions under discussion.

LOYAL E. DAVIS, M.D.

Taylor, H. M.: A Case Report of a Cyst of the Epiglottis Presenting Some Unusual Features. *N. York M. J. & Med. Rec.*, 1923, cxvii, 357.

A review of forty-two cases of cyst of the epiglottis demonstrated that age has little influence on the occurrence of the condition as the youngest subject was a newborn infant, and the oldest, 65 years of age. The growths were found twice as frequently in males as in females, however, and six times more frequently on the lingual surface of the epiglottis than on the laryngeal surface.

In Taylor's case the cyst was excised at its base and the point of attachment was cauterized. The

symptoms had resembled those of an atypical epiglottitis combined with those of laryngeal stridor. Seven weeks after a secondary minor operation for the primary trouble the patient was cured.

E. C. ROBITSHEK, M.D.

McKenty, J. E.: The Operation of Total Laryngectomy for the Cure of Intrinsic Cancer of the Larynx. *Ann. Otol., Rhinol. & Laryngol.*, 1922, xxxi, 1101.

From a large experience in the surgical treatment of carcinoma of the larynx, McKenty concludes that in practically all cases radical operation offers the only hope of cure. He is very optimistic, however, regarding the results of this procedure for in a series of thirty-three cases operated on since 1916 he has obtained an apparent cure in 66 per cent. Surgical procedures less radical than radical laryngectomy which were used previously gave poor results, the great majority of the persons subjected to them dying of recurrence. The factors favoring an optimistic outlook with regard to intrinsic cancer of the larynx are:

1. The slowness of its growth.
2. Freedom of the posterior part of the larynx from involvement.
3. Superficial growth. Cancers beginning in the deeper layers of the larynx may not be more malignant, but often escape detection until they are well developed.
4. Extension forward and downward rather than upward and backward.
5. The age of the patient. Cancers in the late thirties or early forties are more malignant than those developing in later life.

Arytenoid involvement places the disease on the borderline of the extrinsic class and tremendously lessens the hope of cure. Biopsy for diagnosis is contra-indicated. The diagnosis should be made on the history, appearance, and behavior of the growth, and on the exclusion of syphilis and tuberculosis. The loss of motility in the affected cord is almost pathognomonic of cancer. This is due to fixation of the maculature by infiltration. The disease attacks one of the cords, usually in its middle third. There is no primary involvement of the interarytenoid space, which is characteristic of tuberculosis. The Leitz arc lamp is of great aid in obtaining a clear outline of the diseased area. The extent of the growth cannot be determined from its appearance as only the upper margin is seen on inspection, the extension being downward and inward. McKenty believes that it is a good rule to add two-thirds to the visible growth in drawing conclusions as to its size.

Only the most incipient cancers should be treated by any method other than the most radical, and even in these cases better results are obtained by radical operation. The larynx should not be opened for inspection of the growth as in this procedure there is great danger of incising the growth and thereby spreading the disease. The extrinsic cases

are inoperable. The author warns against thyrotomy as it is not sufficiently radical to extirpate the disease, the only exceptions being cases of cancer which is just beginning. Total laryngectomy is the operation of choice. In thirty-one cases subjected to this operation there was no surgical mortality. In twenty-nine, a one-stage operation was done, and in two, the two-stage operation. Two other incipient cases were subjected to thyrotomy. Twenty-five patients have entirely discarded the tracheal cannula, which is rarely possible when the two-stage operation is performed. One of the purposes of the one-stage operation is to secure a tracheal and skin union with a tracheal ring immediately beneath. This gives a rigid opening, dispenses with the cannula, and adds greatly to the patient's comfort. In practically all of these cases an audible whispered voice is developed. Sixty-six per cent of this series of patients are free from recurrence three to five years after operation.

The surgical principles of the operation are: (1) anæsthesia, (2) the prevention of the inhalation of blood, (3) cleansing and disinfection of the nose, mouth, and pharynx, (4) the secure anchoring of the tracheal stump to the skin, (5) proper drainage, (6) closure of the wound, (7) exclusion of the wound from tracheal secretions, and (8) the proper placing and securing of the feeding tube.

The operation is performed under a combination of local and general anæsthesia. The T incision is used and the dissection carried backward until the larynx and trachea are isolated. After ligation of the vessels, the induction of general anæsthesia is begun, the operation to this stage having been performed under anæsthesia induced with 1 per cent novocaine. The trachea is now cut across just below the cricoid cartilage, with great care to prevent the entrance of blood into its lumen. Before division of the trachea a few drops of 10 per cent cocaine solution are injected into it between two rings to prevent coughing. The larynx is lifted forward and the posterior wall of the trachea is incised down to the œsophageal wall. A rubber tube which snugly fits the tracheal lumen is then inserted into the trachea for about 2 in. This acts as a tracheal extension, turns back the blood, and enables the anæsthetist to continue the anæsthesia without being in the way. The larynx is separated from the œsophagus from below upward to a point behind the arytenoids. It is then allowed to fall back into position, and the thyrohyoid membrane is divided, an opening being made into the hypopharynx just below the attachment of the epiglottis. Before this opening is made, the anæsthetist opens the patient's mouth wide, removes all secretions, and paints the entire cavity of the pharynx, hypopharynx, and nasal cavity with a 2 per cent solution of mercurchrome. The edges of the opening through the thyrohyoid membrane are

grasped and held apart. A yard of gauze folded 2 in. wide is then packed into the hypopharynx and crowded upward until it fills the mouth and pharynx.

At this point a careful inspection is made of the growth. If it is found to be entirely intrinsic, the larynx is removed by cutting as close as possible to the superior border of the thyroid cartilage. The opening thus made in the hypopharynx is small and can be easily repaired. If the disease has approached the top of the larynx or has involved the arytenoid, more tissue is removed, even to the removal of the anterior œsophageal wall adherent to the posterior surface of the larynx. Just before the last stitch is tied in the closure of the hypopharynx the anæsthetist removes the gauze packing from the mouth and again cleanses the pharynx and paints it with 2 per cent mercurchrome solution. A feeding tube which will pass through the nose without undue pressure is passed, and when its point appears in the œsophagus beneath the untied stitch it is directed into the œsophagus for about 6 in. The point of exit from the nose is carefully marked and the tube fastened to the face with adhesive plaster. The last stitch is then tied. If the redundancy of the tissues allows it, a second layer of sutures is placed over the first in the hypopharyngeal closure. No. 1 plain catgut is used.

The trachea is anchored to the skin of the neck by two or three stay sutures passed around rings, brought out about 1 in. from the edge of the wound, and tied on small perforated lead discs. In this manner the tracheal stump is steadied in the wound and the strain upon the sutures which are to unite the skin edges with the mucous membrane of the trachea is relieved. To make the union more exact, the fat along the skin edges on both sides is cut away. The skin strip and the edge of the trachea are united with interrupted silk sutures. The wound is closed loosely, no effort being made to bring the deeper structures into anatomical order. It is essential to obtain primary union at but one point, viz., where the two lines of the T incision cross. A tube and gauze drain are passed into the wound at the ends of the T. Just above the point where the trachea is secured to the skin, two small gauze drains are placed, one on each side. A large tracheal cannula wound with gauze impregnated with bismuth paste is fitted tightly into the trachea to prevent wound contamination. Without this tracheal plugging, lung infection would be almost inevitable.

The after-treatment consists in the prevention and treatment of wound infection and the prevention of other complications such as pneumonia, mediastinitis, etc.

This operation has given brilliant results, whereas the less radical measures have recurrence and death as their usual sequel.

BEN N. WADE, M.D.

SURGERY OF THE CHEST

CHEST WALL AND BREAST

Eggers, C.: Radical Operation for Chronic Empyema. *Ann. Surg.*, 1923, lxxvii, 327.

In this article Eggers deals with the treatment of deep sinuses and cavities which have resisted conservative measures. The reasons for the failure of the less radical treatment to effect a cure are usually found in such mechanical conditions of the thorax as a rigid thoracic wall, a collapsed lung, a firm unyielding pleura, pockets and recesses connected with the empyema cavity which are inaccessible to treatment, bronchial communications, and tuberculosis. The operative procedures necessary to bring about a complete cure in these cases consist of more than simple drainage and irrigation. The term "radical operation" is here used to indicate an attempt at the radical removal of the causes of non-healing rather than an attempt to produce complete collapse of the chest wall.

This report is based upon 146 cases gathered from army and civilian practice. Most of them had drained from six months to two years, the longest twelve years. The decision to operate was based, not alone on the length of time drainage had continued, but also upon the local condition found. These cases must be thoroughly studied and the operative procedure carefully planned according to the indications. The patient's general condition must also be considered. If he is anæmic and undernourished, radical operation must be delayed as it is apt to be associated with considerable shock. Prior to operation all patients who had not been so treated were put on intensive Carrel-Dakin treatment, with the establishment of good drainage. The severity of the infection was determined by frequent cultures of the secretions. By this treatment healing was obtained or a clean field was produced for the more radical measures. Except when definitely contra-indicated, all cases were operated upon under general ether anæsthesia. Differential pressure apparatus was unnecessary.

There were several main groups of cases:

1. Cases with an empyema cavity communicating with the exterior by a narrow sinus. This group comprised twenty cases. Many of these were cases in which drainage had been established too low. The entire fistulous tract with its surrounding skin, new-formed bone, and thickened pleura, was excised in one piece. The skin and muscles were partially closed and Carrel-Dakin treatment begun at once. In this group there were no deaths. In several cases healing had occurred by the end of four weeks, but in one the condition persisted for three months. All but four patients, whom Eggers was unable to trace, are known to have been cured.

2. Cases with intractable deep sinuses.
3. Cases with a rigid chronic empyema cavity with infected walls.
4. Cases with an empyema cavity having communicating pockets or recesses.

The treatment of these three groups is considered under one heading, as the underlying principle is the same. Healing has failed to occur either because of rigidity of the walls, infection of the walls leading to re-infection of the cavity, or narrow recesses harboring infection which communicate with the cavity and have caused recurrence. To meet these conditions it is necessary to mobilize the chest wall, mobilize the lung, completely remove all infected tissue lining the cavity, and explore carefully in order to remove all hidden recesses. The operation is planned and carried out with this object in view. Careful hæmostasis is very important, as at best there is considerable loss of blood, and the operation is associated with considerable shock. The wound is closed with one or two short drainage tubes in the dependent part.

Immediately after the operation the patient is given a hot coffee enema containing $\frac{1}{2}$ oz. of whiskey and $\frac{1}{15}$ gr. of strychnine. Hypodermoclysis, if required, should be given under the skin of the thigh, so as not to embarrass respiration. Morphine is given freely during the first few days. There is usually considerable serous or sero-sanguineous discharge during the first few days, but this quickly subsides if the wound remains sterile. Further treatment depends upon the course. If the discharge remains sterile, the drainage tubes are removed in a few days. If organisms are present in the discharge or it is turbid, irrigations with Dakin's solution are given once a day. This should not be begun until after the first week. If pus develops, as is not uncommon in cases in which an incomplete decortication was done, regular Carrel-Dakin treatment is instituted. All patients are encouraged to sit up early, to breathe deeply, and to get out of bed in from three to seven days.

Ninety-nine cases belonging to these three groups were treated. In some instances it was necessary to perform the operation in several steps. Of these ninety-nine cases, healing occurred in forty-one in from four to eight weeks. A few required re-operation. Of the total number of patients, sixty-seven are known to be healed, twelve are known not to be healed, and one is dead. Although it was impossible to get in touch with nineteen, it is assumed that the majority are healed, as notes made at the time of operation or soon after indicated that conditions for healing were favorable.

5. Cases with a chronic open pneumothorax. In chronic pneumothorax the entire lung on one side

has collapsed because of too early operation before adhesions had formed or as the result of perforation of a lung abscess and the production of a pyopneumothorax. If the condition is recognized early, the use of the blow-bottle, deep breathing, and exercises may correct it unless there is a large bronchial communication. Later, however, fibrous changes occur in the lung parenchyma and radical operation is necessary.

Because of the changes in the lung itself, the aim of the operation is primarily mobilization or collapse of the chest wall, and secondarily, mobilization of the lung. The general principles described in the treatment of chronic empyema are followed. Portions of from four to eight ribs are resected sufficiently to allow the chest wall to fall in. The thickened parietal pleura is removed. If the patient's condition permits, decortication of the lung may be attempted. This is frequently very difficult. If decortication is not possible, the lung should be freed completely around its margin, the treatment used in chronic empyema then being instituted. In most cases in which the condition is recognized early, simple drainage and exercises will effect a cure. If the condition is not recognized early and properly treated, it constitutes a very serious problem because of the fibrous changes within the lung. Fifteen patients with this type of condition were treated; seven were healed, four were known not to have healed, three died, and one was not heard from.

6. Cases with bronchial or pulmonary communication. These are divided into cases of broncho-pleural and broncho-cutaneous fistulae. The former usually heal spontaneously, but the latter require surgical intervention. The operative procedures employed for the associated chronic empyema seem sufficient for this condition. Of seven broncho-cutaneous fistulae encountered in the author's cases six healed and one was fatal.

7. Cases with tuberculosis. The presence of tuberculosis in a patient with chronic empyema is often difficult to prove. In the series of cases reviewed there were eleven in which positive evidence of tuberculosis was obtained after radical operation. Of these eleven patients three are healed, one healed and died one year later, one is not healed, three did not heal and died later, and three have not been heard from. Because the condition was not recognized before operation, these cases are included in the group of ninety-nine chronic cases already discussed.

There were also six patients in whom the presence of tuberculosis was known prior to operation. Three of these healed and were apparently cured of the intrapulmonary lesion. One is at present under treatment, one is in a government sanitarium, and one has not been heard from.

In this series of 146 cases of chronic empyema subjected to radical operation the operative mortality was 3.4 per cent.

McMICKEN HANCHETT, M.D.

Du Bray, E. S.: Sudden Death Following Thoracentesis. *Am. J. M. Sc.*, 1923, clxv, 357.

In reviewing the literature Du Bray found that cases of sudden death following thoracentesis may be divided into three classes according to their etiology:

1. Syncope and collapse following mechanical or chemical irritation of the pleura. This is the so-called pleural reflex.

2. Syncope and collapse following injury and congestion of the lung parenchyma. With this is associated a number of conditions such as air embolism, pulmonary oedema, and pulmonary hæmorrhage with or without hæmoptysis. In most instances several of these factors combined account for the collapse.

3. Spontaneous pneumothorax. This has always been regarded as the cause of untoward symptoms and death following thoracentesis in a certain small number of cases, but in the light of our more recent acquired knowledge these results may be better explained on the basis of the pleural reflex or pulmonary injury and congestion.

Du Bray reports a case of his own. Several weeks after the removal of a tuberculous kidney on the right side, findings suggesting a pleural effusion in the right chest were noted. An exploratory trocar was introduced in the seventh right interspace in the posterior axillary line. As fluid was not found at the first puncture, the trocar was partially withdrawn and thrust forward in other directions. During this procedure the patient became cyanotic, and soon fell unconscious.

After the exploration the condition became steadily worse, in spite of all efforts to relieve it, and the patient died at the end of twelve hours.

The chief findings of the postmortem examination which had a bearing upon the immediate cause of death were as follows:

Very dense fibrous adhesions in both pleural cavities, both cavities being practically obliterated. There was no fluid in either pleural cavity. Both lungs were markedly oedematous. The middle lobe on the right side was the site of extensive hæmorrhage. This area extended down to one of the large branches of the pulmonary vein, but actual rupture of the vein was not demonstrated. In the center of the hæmorrhagic area was a puncture wound. No clots were to be found in the neighboring bronchioles. The larger branches of the bronchi in both lungs contained a considerable amount of frothy fluid.

Du Bray concludes that the puncture in the middle lobe of the right lung, which was surrounded by hæmorrhage and congestion, and the associated presence of extensive pulmonary oedema justify the supposition that this accident was caused by the combined physiologic-pathologic mechanism discussed in the second group. There was nothing in the clinical picture or the autopsy findings to suggest that air embolism was a factor.

McMICKEN HANCHETT, M.D.

Stahr, H.: Plastic Mastitis in Cases of Cancer of the Stomach: Mastitis Carcinomatosa (Plastische Mastitis bei Magenkrebs: Mastitis carcinomatosa). *Ztschr. f. Krebsforsch.*, 1922, xix, 231.

The author reports a case of unusual disease of the glands of the breast associated with primary carcinoma of the stomach which had formed extensive metastases in the bronchial, supraclavicular, and axillary lymph nodes. Both breasts were enlarged, especially the left. On cross-section they were found pale and hyperplastic. Histologic examination showed enlarged epithelium-lined lymph channels filled with cancer cells next to normal empty lacteals and separated by connective tissue poor in nuclei. In the vicinity of the enlarged lymph channels a tissue rich in young fibroblasts and lymphocytes was found. There was no inflammatory reaction.

In the author's opinion, this condition is not a simple cancer metastasis but a mastitis carcinomatosa, i.e., a fibrous hyperplasia and induration of the breast caused by cancer elements. The penetrating cancer cells do not proliferate but are destroyed, this giving rise to connective-tissue growth. Analogous to this condition is the osteoplastic stimulus observed in cases of carcinoma of the prostate and the stimulus produced by carcinoma of the breast on the mammary glands not yet invaded, causing lactation.

To explain the condition the author cites the second law of Virchow with regard to metastasis, namely, that the site of predilection of primary carcinoma is very rarely invaded secondarily. In such an organ the penetrating cancer cells do not find the necessary pabulum. The condition is therefore an example of the so-called "atrophic immunity" of Ehrlich.

BUDDE (Z).

Muelleder, A.: The Etiology of Cancer of the Breast in the Male (Zur Kasuistik der Mammacarcinome bei Maennern). *Arch. f. klin. Chir.*, 1922, cxx, 686.

In the last twenty years twelve cases of cancer of the male breast were observed in the von Eiselsberg clinic. This was about 2 per cent of all cases of mammary cancer. As a rule, the glands of the axilla were involved, but involvement of the supraclavicular glands was rare. As the diagnosis was often doubtful, small sections were removed, immediately frozen, and examined, amputation then being performed if necessary. The prognosis is especially grave because of the early metastasis to the spinal column. The treatment consisted of a prophylactic radiation followed by operation. Radiation alone was deemed insufficient.

BANGE (Z).

TRACHEA, LUNGS, AND PLEURA

Peck, C. H., and Cave, H. W.: Acute Suppurative Pleurisy; an Analysis of Ninety-Four Cases. *Surg., Gynec. & Obst.*, 1923, xxxvi, 357.

The exudate of the pneumococcal pleurisy contains more fibrin and is usually more quickly walled off

and somewhat less abundant than that of streptococcal pleurisy. This fact is of great importance from the standpoint of the dangers of open sucking pneumothorax following early operation for empyema of the streptococcal type.

Butler has stated that in civil life the pneumococcus is found twice as frequently as the streptococcus, and these two organisms are the causative factors in 75 per cent of the cases, whereas during the war, approximately 80 per cent of the postpneumonic cases were due to the streptococcus alone.

In sixty-nine of the ninety-four cases reviewed the condition was postpneumonic; in eleven, postinfluenzal; and in three, secondary to lung abscess. In eleven the cause was undetermined. The left side was involved more frequently than the right. In seventy cases the lower part of the chest was involved, and in eighteen the upper. In sixty, the condition was localized; in seventeen, general; and in five interlobar or sacculated. There was no case of bilateral involvement in the series.

The authors believe that repeated simple pre-operative aspiration is of value to tide critically ill patients over to a time when radical operation will be safer, and in a small percentage of cases it may effect a permanent cure. Their treatment consists in inserting 1 to 2 in. into the pleural cavity a large, firm rubber tube $\frac{3}{4}$ in. in diameter and about 6 to 8 in. long, and anchoring it in position by sutures in such a way that an air-tight joint is formed between the chest wall and the tube. In order to accomplish this, a dressing is applied snugly around the tube and strapped with adhesive plaster carefully fitted. Sometimes the tube is passed through a rubber dam beneath the strapping to effect a more perfect closure. When the patient is returned to bed, a long tube of smaller caliber is connected to the large tube and the distal end of the long tube is placed in a bottle of water on the floor at the side of the bed. In this manner the entrance of air into the chest is prevented and each inspiration raises a column of water in the tube which tends to keep the lung inflated. The pus flows from the pleural sac to the bottle, where it settles at the bottom, but no air can enter the pleural sac. After from seven to ten days adhesion between the two layers of pleura is generally established, and lung collapse is prevented mechanically. The tube is then changed for a smaller tube and disconnected from the bottle, and the patient is given a Wolff blow bottle to help obliterate the cavities.

The mortality has been 19.1 per cent. There were three deaths due to operative shock, for which the pneumonia may have been responsible. Two patients died of pneumonia of the opposite lung, two of cerebral embolism, and nine of sepsis and exhaustion in which pneumonia was probably an important factor. One patient died nine days after operation of hemorrhage from the intercostal vessel following removal of the drainage tube.

Late results are known in sixty cases. In forty-nine of these there was complete healing after an

average time of nine weeks. In eleven, a secondary abscess required drainage.

The authors conclude that the successful treatment of acute empyema is based upon measures providing adequate drainage.

DENNIS W. CRILE, M.D.

Perkins, J. J., and Burrell, L. S. T.: Artificial Pneumothorax: Its Application to Cases Other Than Those of Pulmonary Tuberculosis. *Lancet*, 1923, cciv, 478.

The authors review twenty-one cases. Only two cases of a series treated by artificial pneumothorax are omitted. These were both cases of bronchiectasis in which the method was tried but found impossible because of the presence of extensive adhesions. The series reviewed included seven cases of abscess of the lung, six of bronchiectasis, three of recurrent profuse hæmoptysis, two of chronic pleural effusion, and three of effusion complicating new-growths. The three cases of recurrent hæmoptysis and the two of chronic effusion may possibly have originated in tuberculosis, but as no tubercle bacilli were found they were treated for the immediate condition.

In six of the seven cases of lung abscess the results were very satisfactory. In two of these the abscess ruptured into the pleural cavity following pneumothorax, and surgical drainage was necessary. In another of the six there were adhesions requiring thoracoplasty. In the seventh case there was improvement but operation was necessary on account of adhesions; this patient died the day after operation.

In four of the six cases of bronchiectasis there was improvement. The two patients who were not benefited were operated upon and died. In two additional cases pneumothorax was prevented by adhesions. In two of three cases of hæmoptysis of unknown origin the treatment was successful, and in one without benefit. The two cases of chronic pleural effusion were cured. Pleural effusion complicating new-growth was not helped by pneumothorax.

It will be seen from these cases that artificial pneumothorax may be of value in abscess of the lung, bronchiectasis, hæmoptysis of unknown origin, and recurrent pleural effusion. In cases of lung abscess without adhesions, it is sufficient to effect a cure and will render a more severe operation unnecessary. Because of the difficulty of discovering the abscess cavity, it is certainly to be preferred to drainage. When the abscess is superficial the presence of adhesions may lead, under pneumothorax, to its intrapleural rupture, necessitating drainage of the pleura. If the adhesions are widespread they may prevent complete collapse and necessitate thoracoplasty. Nevertheless, the authors advocate artificial pneumothorax as a routine procedure on the ground that it may be sufficient in itself and, if not, that it relieves the symptoms and improves the general condition, thus making it possible for the patient to withstand the more severe operation.

In bronchiectasis also successful results depend on the absence of adhesions. In the cases of recurrent hæmoptysis and chronic effusion the good results were striking.

ROSCOE C. WEBB, M.D.

Rivière, C., and Romanis, W. H. C.: Surgery in the Treatment of Pulmonary Tuberculosis. *Lancet*, 1923, cciv, 531.

It was predicted over one hundred years ago that the treatment of pulmonary tuberculosis would begin to meet with definite success only when a method was devised by which the diseased area could be rendered quiescent.

Of the measures of obtaining this immobile state, artificial pneumothorax should first be attempted. Adherent pleura is one of the chief obstacles to collapse of the lung. Adhesive bands may connect the two layers of pleura, or the two layers may be more or less completely fused. If adhesive bands prevent complete lung collapse, they may be separated by the electrocautery through the thoracoscope, divided with a tenotome, or separated by open operation. The last procedure conducted under gas and oxygen anaesthesia has the advantage that the bleeding from cut ends of the adhesions can be better controlled. The adhesions should be cut as near the ribs as possible to avoid contact with infected lung tissue.

When the pleura is too densely adherent to permit pneumothorax, "pneumolysis" may be attempted. This consists of separating the parietal pleura from the deep fascia and ribs, allowing the lung to collapse inside the chest wall. The space is then filled with a solid medium (paraffin wax or adipose tissue) or with gas (air or nitrogen).

Operations designed to replace pneumothorax are more serious than the latter for three reasons: (1) they hinder recovery; (2) the lung collapse is immediate, occasioning more mechanical and toxic disturbance, and (3) the collapse is not remediable at the end of treatment or in case trouble threatens the other lung. To guard against the last danger, a most careful examination of the condition of the better lung is imperative.

According to Brauer, thoracoplasty achieves not more than three-quarters the collapse obtained by artificial pneumothorax.

In comparison with thoracoplasty, pneumolysis with paraffin packing causes less shock, mutilation, and deformity, and can be performed more quickly, but paraffin may be extruded. However, aspiration of the serous fluid announcing this complication may avert it.

Thoracoplasty is best performed under gas and oxygen anaesthesia. Section of the phrenic nerve in the neck has been done in some cases to aid in diminishing lung excursion by paralyzing the diaphragm, and has lessened the necessity of removing so many of the lower ribs.

The conclusions drawn by the authors with regard to the surgical treatment of tuberculosis are as follows:

1. Persons with tuberculosis tolerate chest operations under gas and oxygen better than is generally supposed.

2. Extrapleural operations are preferable to the intrapleural division of adhesions.

3. Pneumolysis is the simplest and shortest of extrapleural operations, and has the advantage of effecting localized collapse.

4. Pneumolysis is associated with some danger of sepsis, and the paraffin is apt to be extruded.

5. Paraffin does not immobilize as effectively as extensive rib resection.

6. Well-devised thoracoplasty after careful inspection of the better lung gives a condition favorable for the arrest of pulmonary tuberculosis.

V. E. DUDMAN, M.D.

Sauerbruch, F.: The Surgical Treatment of Tuberculosis of the Lungs (Die chirurgische Behandlung der Lungentuberkulose). *Wien. med. Wchnschr.*, 1922, lxxii, 1965.

The author gives a short historical review of the surgical treatment of tuberculosis. Great advancement was made following the introduction of artificial pneumothorax by Forlanini. Forlanini had noticed that recovery occasionally occurred after a large pleural exudate or a spontaneous pneumothorax, the immobility of the affected lung permitting healing. In the presence of adhesions, extrapleural thoracoplasty may be necessary. This operation is usually carried out under local anaesthesia. The resection of the ribs from the eleventh to the first at one sitting is very dangerous and should be attempted only by a very experienced operator, and then only in the presence of a fairly rigid mediastinum. In a several-stage operation the lower ribs should be removed first in order to prevent aspiration into the lower functioning lung.

Sauerbruch's experience now includes 507 cases. The operative mortality varied from 2 to 4 per cent. The 10 per cent mortality in the first few weeks, however, must also be attributed to the operation. A cure was obtained in 33 per cent of the cases. In some of these, six years or more have elapsed since the treatment. In 27 per cent of the cases the condition was improved.

Extrapleural compression and phrenicotomy are to be considered as components of extrapleural thoracoplasty.

Approximately 5 per cent of all cases of lung tuberculosis are operable.

BRUNNER (Z).

ŒSOPHAGUS AND MEDIASTINUM

Gill, E. G.: A Wire Ring in the Œsophagus. *Laryngoscope*, 1923, xxxiii, 213.

An infant 7 months old suffered from choking spells after nursing. X-ray examination showed a metallic ring in the œsophagus, with its lower border opposite the sternoclavicular joint. The ring was successfully removed through a small laryngoscope without the use of an anaesthetic.

Lahey, F. H.: Œsophageal Diverticula. *Boston M. & S. J.*, 1923, clxxxvii, 355.

Diverticula of the œsophagus have been classified by Bensaude, Gregoire, and Guenaux into œsophageal and pharyngo-œsophageal. True diverticula of the œsophagus, the traction diverticula of Rokitsky, may be epiphrenic or epibronchial. In this paper the author deals with pharyngo-œsophageal diverticula, the pulsion diverticula of Zenker.

Pharyngo-œsophageal diverticula are always single and located on the posterior or the posterolateral wall of the pharynx, just above its junction with the œsophagus. They project from between the fibers of the oblique and transverse bundles of the crico-pharyngeus muscle, a division of the inferior constrictor of the pharynx. The pouch occupies the prevertebral space behind and usually to the left of the œsophagus, between the layers of the prevertebral and pretracheal fascia.

The etiology of these diverticula has been a mooted question, but the latest investigations favor Kulenkampff's theory that they are analogous to inguinal hernia in that there is a congenital muscular hiatus covered over by elastic tissue. This elastic tissue relaxes with age, and herniation of the mucosa results from increased intrapharyngeal pressure. The increased intrapharyngeal pressure is attributed to a defect in the neuromuscular mechanism whereby the spasmodically contracted fibers of the inferior constrictor muscle fail to open in coördination with the propulsive action of the pharynx.

Pharyngo-œsophageal diverticula manifest themselves in middle or advanced age. They occur four times as frequently in men as in women. The symptoms have been divided by Starck into the prodromal, the direct, and the indirect. The prodromal symptoms, which may be present for years, include the expectoration of mucus, dryness of the throat or salivation, coughing and choking, cautious deglutition, and at times a feeling suggesting the presence of a foreign body in the throat. Direct symptoms develop when the sac has attained sufficient size to obstruct the œsophagus by pressure or to close the œsophageal opening by traction. Gradually increasing dysphagia then develops, food catches in the throat, and finally liquids cannot be swallowed. Regurgitation always occurs but may be delayed for hours after the taking of food. Indirect symptoms resulting from the pressure of the distended sac consist of dyspnoea, hoarseness, and cyanosis.

The X-ray will demonstrate the sac filled with bismuth extending posteriorly and to the left of the pharynx. A flat fluid level is usually demonstrable.

The medical treatment is confined to the passage of œsophageal bougies to dilate the œsophagus and to overcome the spasm of the inferior constrictor muscle. Surgical treatment is advisable when the diverticulum increases in size and swallowing becomes progressively more difficult.

The surgical treatment consists of a two-stage operation as outlined by Murphy and later modified

by Judd. In the primary operation the pouch is exposed and freed from the surrounding tissues, the neck of the sac sutured to the edges of the skin, the wound closed, and the sac left unopened. The author modifies Judd's technique by partially twisting the neck of the sac before implanting it in the skin wound to prevent leakage after excision of the sac at the second operation. The second operation, performed ten to twelve days later, consists in cutting away the sac so that a mucous canal is left connecting the œsophagus with the skin. The author then repeatedly cauterizes the tract with crude carbolic acid to favor closure.

Lahey reports a case treated by the method described, in which, thirty-seven days after the operation, there was complete closure of the mucous tract and no difficulty in swallowing. The X-ray demonstrated complete absence of obstruction at the level of the lesion. DENNIS H. KELLY, M.D.

Mayo, C. H.: The Treatment of Diverticulum of the Œsophagus. *Ann. Surg.*, 1923, lxxvii, 267.

The author reviews the literature relative to diverticula of the œsophagus and concludes that these lesions occur more commonly than is generally supposed. The types of diverticula, the etiological factors, and the diagnosis are discussed. With regard to the diagnosis mention is made of examination by means of sounds guided by a previously swallowed silk thread, as developed by Plummer. The value of fluoroscopic examination after the ingestion of barium emulsion is emphasized.

With regard to the use of surgical measures in the treatment, the author states that the type of operation employed should depend on the size of the sac. When the sac is small, the operation can be done in one stage, the sac being amputated and the fistula closed with two rows of chromic catgut. When the sac is large, it should be delivered unopened and amputated from ten to twelve days later. In the Mayo Clinic seventy-four patients were operated on for this condition. There were three deaths.

Jankowski: Total Œsophagoplasty (Ueber totale Oesophagusplastik). *Eesti arst*, 1922, i, 246.

The author reports the cases of four patients operated on for stenosis of the œsophagus caused by lye. Two are again able to take nourishment by mouth. In one case there has been an increase in weight from 107 to 172 lbs.; in two cases the connecting skin tube is still absent.

Previous to the plastic operation, gastrostomy was done for improvement of the patient's general condition. The plastic operation consisted in forming from the jejunum an ante-thoracic, subcutaneous tube behind the transverse colon and in front of the pars pylorica of the stomach, extending up to the third rib. The œsophagus was divided transversely, the proximal end fixed to the musculature, and the distal end sutured into the skin wound. The con-

struction of the ante-thoracic skin tube was done by a flap operation.

In the discussion of this paper Zoege von Manteuffel pointed out that thick, soft sounds may be passed directly after the injury for the prevention of stricture. If perforation of the œsophagus or stomach occurs, this is due to the depth of the erosion and not to the sound. SCHMIDT (Z).

MISCELLANEOUS

Pringle, J. H.: Intrathoracic Catastrophes Simulating the Acute Abdomen. *Lancet*, 1923, cciv, 279.

The author cites two cases in which the clinical findings suggested the condition called by some writers the "acute surgical abdomen." Both were characterized by severe abdominal pain and marked rigidity. The first patient was prepared for operation but was not operated upon because of a change in his general condition. In the second case an exploratory operation was done but the abdominal organs were found normal. Both patients died within a few hours after their admission to the hospital, the first of occlusion of the left coronary artery, and the second of rupture of the aorta. In both cases arteriosclerotic changes were found.

This report is made because, in the author's opinion, the possibility that lesions of the large vessels of the chest may cause symptoms resembling those of acute abdominal conditions has not been sufficiently emphasized. RALPH B. BETTMAN, M.D.

Childs, S. B.: New Growths Within the Chest: X-Ray Diagnosis. *Am. J. Roentgenol.*, 1923, x, 175.

Hall, J. N.: New Growths within the Chest. *Am. J. Roentgenol.*, 1923, x, 182.

These two papers were part of a symposium.

With regard to the X-ray diagnosis, Childs divides intrathoracic growths into two classes: (1) those in the mediastinum, and (2) those in the lungs. Conditions involving the mediastinum include Hodgkin's disease, lymphosarcoma, intrathoracic thyroid, enlarged thymus, cysts, sarcoma, cold abscess, and aneurisms.

Hodgkin's disease. This condition is generally shown by a paratracheal dense shadow projecting beyond the mediastinum, with a border either irregular in outline or circumscribed and clearly defined. It is usually bilateral, but occasionally unilateral.

Lymphosarcoma. Lymphosarcoma begins in the mediastinum and is apt to increase rapidly in size and involve the lung or pleura or both. Frequently, enlarged supraclavicular lymph glands can be detected. Upon microscopic examination the latter determine the diagnosis.

Intrathoracic thyroid. This condition casts a fairly characteristic shadow of uniform density in the upper part of the mediastinum. The base of the shadow is upward. In its lower extremity its diameter is less. Its edges are well circumscribed.

Enlarged thymus. An enlarged thymus casts a small, inverted heart-shaped shadow which overlaps the aorta and the base of the heart. The X-ray diagnosis of this condition, however, is not particularly reliable.

Cysts. Cysts cast a characteristic shadow which is generally well circumscribed and of uniform density. A dermoid cyst is characterized by a distinctly clear-cut border circumscribing a round dense area which usually projects from the right side of the mediastinum. This type of cyst is usually single, and the shadow cast by teeth or pieces of bone may be seen within it. This finding and the expectoration of sebaceous material or hair are confirmatory. Also if frequent examinations over a considerable period fail to show any marked change in the size of the cyst and no evidence of secondary deposits in the chest, the diagnosis of dermoid cyst is greatly strengthened. A cyst may be overlooked, especially if it is overshadowed by the heart. A large area of transmission of the cardiac impulse when neither the size of the aortic or heart shadow nor the intensity of the heart beat warrants such transmission, should suggest a mediastinal lesion.

Primary sarcoma. Primary sarcoma frequently has its origin in the thymus or thyroid, and may become very large. Besides producing marked pressure symptoms clinically, this tumor generally shows distinctly in the X-ray examination in the form of a round shadow with a clear-cut border.

Cold abscess. This condition frequently presents an appearance simulating that of a new growth. It produces a dense shadow overlapping the shadow of the spine bilaterally. An ordinary abscess causes a dense shadow which may present beyond the edges of the mediastinum, but the diagnosis depends largely on the clinical history.

Aneurism. The diagnosis of aneurism is usually not difficult but occasionally a case is seen in which pulsation is diminished or absent. The low position of the heart and the flattened left ventricular margin are of value in the diagnosis.

One or more masses may signify tuberculous glands or a primary or secondary carcinoma. The shadows cast by these conditions are practically the same. The fact that tuberculous glands are generally found in the posterior mediastinum while cancerous nodules occur more often in the anterior mediastinum, is of aid in differentiating them. Carcinoma of the œsophagus should be mentioned with the growths of the mediastinum occurring in the posterior portion. An opaque mixture in the œsophagus aids in distinguishing it.

New growths in the lungs are divided into benign and malignant. Excluding pneumoconiosis, new growths of the lung are very rare. Childs has never seen an ecchinococcus cyst. Hall reports one. The malignant growths are divided into primary and metastatic.

Primary sarcoma. The occurrence of this growth in the lung is very rare. Childs has no proved case to report.

Primary carcinoma. Primary carcinoma of the lung is not common, but occurs often enough to make it an important condition for the roentgenologist to bear in mind in all cases in which the X-ray, clinical, and laboratory evidence does not warrant a diagnosis of one of the more common pathologic conditions. There are two types: that of the lobe and that of the hilus. The lesions of the hilus predominate and usually invade the parenchyma in their progressive development. The shadow is usually roughly circular, shading off into the lung shadows, with processes radiating into the lung. In addition, there are a few nodules with indistinct edges surrounding the central shadow or in relation to the bronchial trunks near the periphery.

The metastatic deposits in cancer may be general in both lungs or confined to one lung. The X-ray findings consist of generalized nodules in the lungs or localized deposits in the line of lung markings, generally involving the lower half of the lung and apparently beginning at the hilus.

When the pleura is involved in the metastasis before the lesions are demonstrated in the lung, the first sign detected may be only restriction of the movement of the diaphragm on the side which is affected.

Cancer metastases in the lung are comparatively frequent, especially secondary to carcinoma of the breast. X-ray examination of the lungs is therefore recommended before radical operation.

Hall speaks of the increase in the incidence of malignant disease within the chest. The diagnosis is made in from 80 to 90 per cent of cases in some clinics, but in others only occasionally because of a general lack of knowledge regarding the condition and of facilities to investigate it.

Malignant disease within the chest involves primarily and secondarily chiefly the following structures: the lungs, including the bronchi, the pleuræ, the mediastinal glands, the thymus, the thyroid, and the œsophagus. Teratomata are also to be considered.

It is in the lungs and bronchi that the recently noted increase in malignant disease has occurred, and the opinion is general that the source of these growths lies in the frequent residual lesions left in the wake of the great epidemic of influenza. Undoubtedly, the factor preceding the malignancy is chronic irritation with inflammation. This is borne out by the fact that malignancy in this group is practically limited to males and usually occurs after the fortieth year of age.

Primary carcinoma may be of the sharply defined nodular type at the root of the lung or of the infiltrating type spreading along the bronchial tree from the hilus. Occasionally it spreads along the thoracic duct.

Secondary carcinomatous involvement of the lung is very common. Warfield found lung metastases at autopsy in 178 of 516 cases of carcinoma of the breast. Metastasis from primary carcinoma of the lung occurs most frequently in the lymph nodes,

and next most frequently in the liver. Bones and other structures are occasionally affected.

Primary sarcoma spreads outward more especially about the median fissure on the left side and the median lobe on the right side.

Secondary sarcoma of the lung is more often seen as a late development of sarcoma of the testicle.

Metastases of hypernephroma are fairly common.

The symptoms are usually first those of inflammation, rather than the presence of a new growth. Later, mechanical pressure, destruction of tissue, etc., are noted.

The onset of the condition is slow and associated with a dry cough and slight expectoration. Later, the expectorated material becomes blood-stained, and finally bloody and gelatinous. The disease is progressive and characterized by increasing cachexia, aspiration of bloody fluid from the chest, suggestive physical findings, and characteristic X-ray findings. The findings of the microscopic examination of an excised lymph gland which has become enlarged are conclusive.

Tuberculosis and syphilis must be ruled out in every case.

Primary malignancy of the pleura is usually unilateral and causes the usual symptoms of pleurisy. The aspirating needle passes through the leathery pleura with difficulty, and as a rule bloody fluid is withdrawn. The X-ray shows pleural thickening. This may be very marked. Inoculation metastases may develop along the needle track.

Secondary malignant disease of the pleura is much more common than primary, and comes from the breast, stomach, or mediastinum.

Sarcoma is less common than carcinoma.

Malignant tumors of the mediastinum usually arise from the mediastinal lymph glands or the thymus, but an aberrant thyroid or the œsophagus may be the point of origin.

Sarcoma is the most common mediastinal growth. Lymphosarcoma, Hodgkin's disease, and leukæmia are not infrequent. Teratomata are rare.

Secondary growths from neighboring malignancies are common. McMICKEN HANCHETT, M.D.

SURGERY OF THE NERVOUS SYSTEM

BRAIN AND ITS COVERINGS; CRANIAL NERVES

Morgan, D. H.: Brain Injuries Without Skull Fractures. *Ohio State M. J.*, 1923, xix, 157.

Cranial injuries call for skillful observation and treatment to save the life or the future mental condition of the victim. These cases practically always are looked after primarily by the general practitioner, and it is upon him that the burden of proper treatment and consultation rests. It is of prime importance that an early diagnosis of the cranial or intracranial injury be made. The diagnosis of skull fracture is not so important as that of increased intracranial pressure or brain injury. Each case is a study in itself, and consultation with a surgeon and a neurologist should be had for all cases wherein brain injury or increased intracranial tension is suspected.

The symptoms of acute brain injury are headache, nausea, and vomiting. Unconsciousness may or may not be present. A dazed feeling and confusion may be the extent of the mental change. In mild cases the headache clears up in a few days; in operative cases it ceases promptly as soon as the intracranial pressure is removed. The local signs of acute brain injuries are contusions, ecchymoses about the orbits and mastoid regions, hæmorrhage from the nose, mouth, or ears, hæmatoma, and skull fractures. The general signs are shock, temperature changes, variations in the pulse rate, respiratory abnormalities, high blood pressure, paralysis, impairment of sensation, unconsciousness, restlessness, convulsive seizures, alterations in the reflexes, pupillary changes, and abnormal urinary, ophthalmic, and spinal fluid findings.

Surgical procedures should not be done without evidence of steadily increasing intracranial pressure or depressed skull fracture.

The author warns against indiscriminately operating on all skull fractures and urges conservatism. Intracranial tension, however, is an emergency and should be immediately relieved by a decompression operation. Such relief of tension is effected in cases of fracture when the cerebrospinal fluid escapes into the nasal or aural cavities or directly externally. In the later stages of intracranial pressure with profound coma and manifestations of medullary oedema it is useless to operate as the condition is fatal.

The psychiatrist does not often see cases of acute brain injuries, his observations being limited to their after-results. Many cases present mental symptoms and physical findings directly traceable to the injury. A few may be relieved by surgical procedures. In all such cases it is important to differen-

tiate functional and organic lesions, a differentiation which throws great responsibility on the psychiatrist, especially in medicolegal cases.

The general practitioner, the surgeon, and the psychiatrist therefore have a common interest in cases of this type, and should consult with each other in order to obtain the best possible results.

BEN N. WADE, M.D.

Grant, F. C.: The Use of Air in the Diagnosis of Intracranial Lesions: An Illustrative Case. *Surg. Clin. N. Am.*, 1923, iii, 289.

The author describes a method of outlining certain intracranial lesions with air for X-ray diagnosis. If at operation a cyst is found, a cannula is introduced into it, the fluid is evacuated, and air is introduced. The roentgenogram will then give an outline of the cyst.

Another helpful procedure is the introduction of air into the ventricles for X-ray examination. The author cites a case in which this method was successfully used to determine the location and extent of a gliomatous growth in the silent areas.

MARCUS H. HOBART, M.D.

McCannel, A. D.: Aerocele of the Brain, with Report of Cases. *Laryngoscope*, 1923, xxxiii, 189.

To the ten cases collected by Spiller the author adds a new case which he reports with roentgenograms.

The patient, a woman, received a fracture of the frontal bone in an automobile accident. This was followed by partial loss of vision in the right eye with slight exophthalmos, double vision, and turning in of the right eye due to complete paralysis of the external rectus. With the right eye, fingers could be seen at 12 in. In the left eye vision was 20/20. About three weeks later a second roentgenogram showed a large round area of diminished density directly beneath the site of the fracture into the right frontal sinus.

Two months later the area of diminished density had disappeared. Fundus examination showed the optic nerve to be rather white. Vision was 20/50 in the right eye and 20/20 in the left.

McCannel's conclusions may be summarized as follows:

1. Aerocele of the brain, or air in the cranial cavity, is a comparatively rare condition, but probably not as rare as is suggested by the number of cases reported.

2. Aerocele does not always appear at the time of the trauma or accident, usually developing two or three weeks later. In all cases of head injury, especially in fractures near the sinuses, a search should be made for this condition.

3. The roentgenogram is the only means of making a diagnosis.
4. The pathology of the condition has not been definitely determined. CARL R. STEINKE, M.D.

Kurtzahn, H.: Roentgenological Observations on the Treatment of Epilepsy with Intensive Irradiation of One Adrenal Gland (Roentgenologische Bemerkungen zur Epilepsiebehandlung durch Intensivbestrahlung einer Nebenniere). *Arch. f. Psychiat. u. Nervenkrankh.*, 1922, lxi, 792.

The technical directions for roentgen irradiation of the adrenals are given. The irradiation of one adrenal was undertaken by the author in the treatment of epilepsy at the suggestion of Klineberger. The left adrenal gland was chosen in order to avoid injuring the liver and pancreas. Injuries of the spleen were eliminated by the technique.

Two rectangular fields were irradiated: (1) a dorsal field, in which diagonal lines would intersect each other at a point 2 to 3 cm. lateral to the vertebral column at the level of the articulation of the eleventh rib and in which the longitudinal axis was parallel with the vertebral column; and (2) a ventral field, opposite the dorsal field.

The dosage which was effective in the depths corresponded approximately to the castration dose of Seitz and Wintz for thin persons. Up to three irradiations were given at intervals of at least eight weeks. WREDE (Z).

Pussep, L.: The Surgical Treatment of Epilepsy: Twenty Years' Observations (Die chirurgische Behandlung der Epilepsie: nach 20 jaehrigen Beobachtungen). *Klin. Wchnschr.*, 1922, i, 2142.

Pussep has operated upon 318 cases of epilepsy in the last twenty years. He reports the changes found at operation and the operative results in statistical form without any details. His conclusions are as follows:

1. Operative interference is indicated in circumscribed cortical epilepsy, provided the attacks have not been occurring for a long time.

2. In traumatic epilepsy operation is indicated only if cortical brain symptoms are present. In all other cases, operation is not indicated, and in status epilepticus surgical measures should be employed only as a last resort.

In regard to the operative technique, Pussep emphasizes the necessity of forming a valve and removing all pathologically changed areas of the cerebral meninges and cortex. If no macroscopic changes are found, centers of increased irritability should be sought by electrical stimulation of the cortex and these should be excised to a depth of 0.5 cm. WREDE (Z).

Anschuetz: The Results of Palliative Trephination for Brain Pressure (Ueber Erfolge der palliativen Trepanation bei Hirndruck). *Deutsche med. Wchnschr.*, 1922, xlviii, 1406.

With regard to the results of palliative trephination for the relief of brain pressure, von Eiselsberg and Ranzi have reported nine cases, Dedekind four, Kuettner forty-two, and Brade thirty-six. In this article Anschuetz reports fifty palliative trephinations.

As averages do not give a clear picture when the prognosis varies so widely, Anschuetz groups his cases according to the level of lumbar pressure. In ten cases, however, the measurement was not taken, because of the fear of complications. The four groups made are as follows:

Group 1. In this group there were seven cases with lumbar pressure up to 300 mm. Death followed the operation in one case (14 per cent). All of the other patients lived longer than one year, and a considerable number from three to fourteen years, with full or partial ability to work, depending upon the degree of optic atrophy present before the operation.

Group 2. This group included twenty-four cases with lumbar pressure up to 600 mm. The mortality was 5.20 per cent. Eight of the patients died during the first year and only a small number lived longer than three years.

RESULTS OF SURGICAL TREATMENT OF EPILEPSY

Form of epilepsy	Operations	Attacks disappeared for				Attacks became		Not improved	Deaths
		5 years	Per cent	3 years	1 year	Fewer	Weaker		
1. Essential epilepsy.....	40	..	..	1	2	4	5	27	1
(a) Status epilepticus.....	9	..	..	..	..	3	3	..	2
2. Traumatic epilepsy									
(a) Common traumatic epilepsy (without objective signs of injury of skull).....	28	..	..	..	5	3	4	16	..
(b) Common traumatic epilepsy (with objective signs of injury of skull).....	46	2	4.3	1	9	10	8	16	..
3. Traumatic cortical epilepsy.....	43	3	8	3	18	6	7	6	..
4. Common cortical epilepsy (non-traumatic).....	97	4	4	18	24	13	18	20	..
5. Circumscribed cortical epilepsy.....	23	4	17	5	8	2	2	2	..
6. Epilepsy following encephalitis and organic lesions.....	13	..	..	1	2	3	4	3	..
7. Epilepsy and idiocy.....	19	..	..	..	3	4	7	6	..

(Pussep: *Surgical Treatment of Epilepsy*.)

Group 3. In this group there were twelve cases in which no measurement was made. According to the syndrome, they belonged to Groups 1 and 2. The results also were similar.

Group 4. Group 4 included seven cases with lumbar pressure over 600 mm. Operation was the last resort, and proved injurious rather than beneficial. Since some of the patients came to operation in a comatose condition, the poor results were not surprising. Cushing's operation was performed and, when possible, was bitemporal. In order to prevent bulging of the brain, sutures were taken in the muscle before the dura was opened. The sphenoidal portions of the calvarium were removed with flat forceps in the direction of the foramen spinosum. The trephining was carried further on the right side than on the left, to avoid the frontal speech center.

Although the most experienced neurologists admit that the diagnosis of tumor of the brain can never be made with absolute certainty, and confusion of such a growth with internal hydrocephalus, meningitis serosa, pseudotumor, etc., is common, Anschuetz agrees with Horsley that an early operation is indicated in all cases of continuous brain pressure.

PLENZ (Z).

Mixer, W. J.: Ventriculotomy and Puncture of the Floor of the Third Ventricle. *Boston M. & S. J.*, 1923, clxxxviii, 277.

In cases of non-communicating hydrocephalus the introduction of a small sound through the floor of the third ventricle and into the interpeduncular cistern allows cerebrospinal fluid to pass into the subarachnoid space. In the case of a child 4 months of age who was admitted to the Massachusetts General Hospital with marked hydrocephalus the ventricles were tapped but soon refilled. Indigo-carmin injected into the ventricles could not be recovered from the spinal fluid in forty-five minutes. Six months later the hydrocephalus had become extreme.

Under ether anaesthesia an opening was then made through the fontanelle in the right temporal region, and through an incision in the dura a urethroscope was passed into the lateral ventricle and through the dilated foramen of Munro for exploration of the third ventricle. Under visual guidance a flexible sound was then passed through the floor of the ventricle and the opening enlarged. Fluid escaped through the opening at once. The urethroscope was then withdrawn and the incision closed. Ten days later simultaneous ventricular and lumbar puncture showed identical manometer readings, indigo-carmin injected into the ventricle appeared at the lumbar needle in thirty seconds, and the circumference of the head had decreased $1\frac{1}{2}$ in. Later results are awaited with interest.

The author states that puncture of the floor of the ventricle is easier and more satisfactory than puncture of the corpus callosum suggested by Fay and Grant.

WILLIAM J. PICKETT, M.D.

Martin, J. P., and Greenfield, J. G.: Tumor in the Cisterna Magna. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sec. Neurol., 32.

Three years before he entered the hospital, the patient, a man about 45 years of age, had first noticed a pricking sensation in the left hand. This gradually spread, weakness in the legs developed, and paralysis of both arms and legs ensued.

When examined, the patient was cyanotic and unable to move about in bed. The eye examination was negative except for ptosis of both lids. Sensation to pin-prick, heat, and cold was retained. Position sense was lost in the right arm. The muscle power was variable. After movement it was fair, but the patient became helpless after lying in bed. The muscles of the abdomen and chest were flabby. There was no fibrillation. Movement was much weaker on the left side than on the right. The deep muscular reflexes were exaggerated. A double ankle clonus was present. There was no incontinence. The Wassermann test was negative. The patient died of hypostatic pneumonia.

Autopsy revealed in the cisterna magna a firm and pear-shaped tumor which weighed 32.5 gm. This growth lay against the foramen of Magendie and its larger end pressed upon the right lobe of the cerebellum. The foramen of Luschka was patent. There was slight hydrocephalus. At the lower end of the medulla the tumor compressed the right dorso-lateral surface of the first cervical segment. Pressure was exerted also upon the cuneate and gracile nuclei. The tumor was a fibrous meningeal endothelioma.

WILLIAM J. PICKETT, M.D.

Frazier, C. H.: Some of the Surgical Problems in the Management of Pituitary Disorders. *Surg. Clin. N. Am.*, 1923, iii, 33.

Surgery is performed on the pituitary body chiefly for the relief of pressure, especially pressure on the optic tract. Three groups of surgical conditions are recognized: (1) adenomata, (2) tumors having an anatomical association with the pituitary structure, such as tumors of the pouch of Rathke and of the hypophyseal duct, and (3) suprasellar growths or neighborhood tumors.

The symptom of chief importance is the visual disturbance. Usually this is more advanced in one eye than in the other. In at least 50 per cent of the cases seen by the author in the clinic, one eye was totally blind.

Radiography is always necessary as an aid to diagnosis and a guide to treatment. The primary intrasellar group of tumors cause a characteristic deep cup-shaped excavation of the sella, but the posterior clinoid processes are atrophied and the sella appears elongated rather than deepened. The cysts and duct tumor may show sharp delineations from calcareous deposits. The sphenoid sinus may be partially or practically destroyed by the encroachment of the growth. In such cases a decompression alone will not be sufficient. The third ventricle will be outlined in the ventriloqram.

Glandular therapy is not of much value. In advanced cases in which blindness is threatened, operation should be done.

In X-ray treatment the visual field is an index of the effectiveness of treatment. The author cites the case of a woman who had recurring visual and other disturbances after a subsellar decompression, but was cured by X-ray therapy.

Suprasellar lesions should be approached operatively by the frontal route. Several cases in which this was done are cited.

The primary intrasellar type of tumor should be operated upon by the transphenoidal route. If a secondary operation is necessary, the transfrontal operation is indicated. There were no deaths in the author's cases in which the transphenoidal operation was done. The mortality of the transfrontal operation is given by others as 40 per cent.

Cysts are difficult to deal with. If they are not totally extirpated they may refill.

Vision has been improved in 75 per cent of the author's cases. X-ray after-treatment should reduce the incidence of recurrences.

MARCUS H. HOBART, M.D.

Lanman, T. H., and Smith, L. W.: Hypophyseal Duct Tumor in a Child of Ten. *Surg., Gynec. & Obst.*, 1923, xxxvi, 361.

To the thirty-eight cases of hypophyseal duct tumor reported by Jacobson in 1916, the seventeen reported by Duffy in 1920, and the three reported by Bailey in 1921, the authors add a case in which the symptoms at first led to a diagnosis of appendicitis. Subsequently, on the basis of X-ray findings in the brain, an operation was done for exploration and cerebellar decompression. The patient died shortly afterward.

Autopsy revealed a tumor about the size of a large walnut lying between the olfactory nerves, beneath the optic chiasm and in the region of the infundibular stalk to which it appeared to be attached. The sella had undergone definite atrophy and destruction of its posterior wall. The tumor was cystic. It appeared to arise from the anterior portion of the pituitary gland and the space normally occupied by the third ventricle, occluding the foramen of Munro and causing the slight internal hydrocephalus which had been previously demonstrated by the X-ray. Its adamantinomatous appearance on microscopic examination suggested its origin from the hypophyseal duct rests.

DENNIS W. CRILE, M.D.

Fracassi, T.: Spontaneous Meningeal Hemorrhage (Hemorrhagia meningea expontanea). *Rev. méd. d. Rosario*, 1922, xii, 395.

The cause of spontaneous meningeal hemorrhage is probably some change in the blood vessels due to an acute inflammation, a true hemorrhagic meningo-encephalitis in which the syndrome of meningeal hemorrhage is dominant although at autopsy hemorrhagic foci may be found only in the cerebrum. The condition is often confused with others,

and in two of the cases reported by Fracassi the patient had been treated for cerebrospinal meningitis.

Although Fracassi has been able to find only a few such cases reported in the Argentine medical literature, he believes it occurs more frequently than is generally supposed. He gives the histories of eight cases which he has been able to collect in the past two years. These were cases of subarachnoid hemorrhage occurring spontaneously in persons apparently healthy or with ordinarily benign affections in which there was no evident mechanical cause for the lesion such as epilepsy, the crisis of labor, etc.

This type of hemorrhage occurs in youth or middle age, periods of life in which cerebral apoplexy is rare. The meningeal hemorrhage is primary, and although hemorrhagic foci are found on the cerebrum at autopsy, they are never in relation to the subarachnoid cavity. The symptoms in the majority of cases are typical, the condition being characterized by suddenness of onset and the gravity of the clinical picture. A person previously healthy is suddenly seized with an epileptiform attack or falls into coma. In other cases the attack begins with intense cephalgia which cannot be overcome with analgesics or hypnotics, and after a few days symptoms of meningeal irritation appear. Frequently there is bradycardia due to cerebral compression preceded by tachycardia due to shock caused by the invasion of the subarachnoid space by blood. The diagnosis can be verified only by lumbar puncture.

The prognosis is very unfavorable. In the author's cases the mortality was 25 per cent, but in those reported by others it was higher. The youngest patient in the author's series was 19 years of age and the oldest 56 years.

W. A. BRENNAN.

Martyn, H. L.: The Operative Treatment of Septic Meningitis. *Lancet*, 1923, cciv, 485.

Up to the time of Jenkins' paper in 1922 on the successful operative treatment of septic meningitis occurring as a complication of aural suppuration, the condition was generally regarded as inevitably fatal. In the author's opinion, Jenkins' work is of great importance. Successful drainage of the infected area in the meninges is no more impossible than the successful operative treatment of peritonitis. The main difficulty is the early diagnosis and localization of a beginning meningitis. For successful operative treatment this must be done before the appearance of the classical symptoms and signs of meningitis. Drowsiness, occipital headache, nuchal tenderness, slight rigidity, a moderate temperature, a comparatively slow pulse, absence of papilloedema, and marked cerebrospinal-fluid changes are characteristic of cisterna infection. In contrast to these are the symptoms of infection over the temporo-sphenoidal lobe spreading through the roof of the middle ear, viz., irritability, vague headache, especially over the affected ear, a higher temperature with a proportionately rapid pulse, photo-

phobia, and but slight alteration in the cerebrospinal fluid.

The author agrees with Jenkins that the trans-labyrinthine route is the best for drainage of the cisterna pontis. In the case reported he drained the cisterna by a horizontal incision through the dura below the lateral sinus. This was done because there was no sign of labyrinthine involvement in spite of the stormy course after the mastoid operation. All the characteristic symptoms and signs of cisterna infection were present. The patient made a satisfactory recovery.

STANLEY J. SEEGER, M.D.

Walshe, F. M. R.: A Case of Secondary Carcinomatous Infiltration of the Pia Arachnoid of the Brain Presenting Exclusively Ocular Symptoms During Life: Meningitis Carcinomatosa. *Brit. J. Ophth.*, 1923, vii, 113.

Walshe reports a case of carcinomatous infiltration of the pia arachnoid so fine that it was not evident to the naked eye and produced only ocular symptoms instead of the symptoms of acute meningitis. The patient complained of progressive failure of vision in the left eye, diplopia, and headache. A squint and blindness of the left eye developed. There was occasional difficulty in swallowing, but no nausea or vomiting. The patient lost weight. The left pupil reacted to accommodation but not to light.

The postmortem examination showed the left abducens nerve to be thickened and opaque. The pia arachnoid covering the ventral surface of the pons and the cranial nerves was thickened. This thickening showed cubical-cell carcinoma. The growth was regarded as a secondary carcinoma from a primary adenocarcinoma in the alimentary tract which was not found.

VIRGIL WESCOTT, M.D.

Polonovski, M., and Duhot, E.: Glycæmia and Glycorrhachia (Glycémie et glycorachie). *Presse méd.*, Par., 1923, xxxi, 60.

Normally, the sugar content of the cerebrospinal fluid is parallel with the sugar content of the blood. In experimental hyperglycæmia produced by the injection of adrenalin a similar increase in sugar was found in the cerebrospinal fluid. Accordingly, it appears that there is an osmotic sugar equilibrium between the blood and the cerebrospinal fluid. As this was found in cases of diabetes but not in meningeal inflammatory processes, it may be of value in the diagnosis of diseases of the nervous system and meninges.

LOYAL E. DAVIS, M.D.

Foley, F. E. B.: Alternations in the Currents and Absorption of Cerebrospinal Fluid Following Salt Administration. *Arch. Surg.*, 1923, vi, 587.

The pressure of the cerebrospinal fluid and the bulk of the brain can be reduced by the administration of hypertonic solutions intravenously or by the ingestion of salt. The diminution of brain volume does not wholly account for the lowering of the fluid pressure as the latter has been found to be due to a disturbance in the fluid-absorbing and fluid-

producing mechanisms associated with marked alteration in the normal currents of fluid in the ventricular system and cerebrospinal spaces.

In a review of the normal anatomy and physiology the author emphasizes the fact that the choroid plexuses are really extraventricular structures as they consist of masses of fine convoluted vessels lying outside the continuous layer of ependymal epithelium which thus becomes invaginated over them and excludes them from the ventricular cavities proper very much as the peritoneal covering excludes the intestines from the peritoneal cavity.

The extraventricular fluid spaces or subarachnoid space is made up of the irregular crevices formed by the irregularities of the brain surface and the space intervening between the brain and the skull. This space is lined by a continuous mesothelial membrane, the pia, on the side of the brain, and the arachnoid on the side of the skull.

The main portion of the cerebrospinal fluid is a product of the choroid plexuses. In the subarachnoid space there is a second source of supply from the perivascular spaces surrounding the vessels of the brain substance. Under normal circumstances the flow is from brain substance to subarachnoid space.

From the subarachnoid space the fluid is absorbed into the dural sinuses along the arachnoid villi and along the sheaths of the cranial and spinal nerves, a stream which finally enters true lymphatic channels.

After the administration of salt, investigations were made with regard to the volume of fluid absorbed from the subarachnoid space and ventricles, or the ventricles alone, the accompanying pressure change, and the gross and microscopic identification of material precipitated from a foreign solution supplied to the subarachnoid space or ventricles. The salt was administered in a 30 per cent solution either intravenously or into an exposed loop of the duodenum. The animals were anesthetized with urethane.

The experiments showed that salt administration establishes a new ratio between cerebrospinal fluid production and absorption pressures, resulting in decreased tension of the fluid in the subarachnoid space and ventricles of the brain.

The administration of salt induces the following changes in the mechanism of fluid absorption: (1) intraventricular absorption through the choroid plexus and ependyma; (2) absorption by the capillaries of the brain substance with reversal of the flow of fluid in the perivascular spaces; (3) an increased rate of absorption along the sheaths of the cranial and spinal nerves; and (4) direct absorption into the vessels which traverse the subarachnoid space.

The administration of salt causes alterations in the gross currents of the fluid which are incident to the changes in the mechanism of cerebrospinal fluid absorption described. Chief among these alterations in the currents of the fluid is reversal of the flow in the aqueduct and ventricular system.

MORRIS H. KAHN, M.D.

Bordoni, L.: Roentgen Treatment in Rebellious Trigeminal Neuralgia (La roentgenterapia nelle neuralgie ribelli del trigemino). *L'Actinoterapia*, 1922, ii, 381.

The author treated eight cases of rebellious trigeminal neuralgia with the X-rays and in six obtained a cure. In only one case was the result negative.

Roentgen treatment acts by freeing the nerve from the infiltrations compressing it and stimulating the circulation of the blood by producing a hyperæmia.

In the opinion of some authors, there is a direct action upon the nerve itself, but Bordoni believes this is doubtful because of the resistance of nerve tissue to the X-rays.

When the curative effect of the X-ray is slight, it is probable that the condition is interstitial neuritis or due to perineural fibrosis.

If roentgenotherapy is not successful, its use does not contra-indicate surgical or other treatment.

W. A. BRENNAN.

PERIPHERAL NERVES

Saito, M.: Regeneration of the Peripheral Nerves in Adults (Zur Frage der Regeneration der peripheren Nerven des erwachsenen Menschen). *Arch. a. d. neurol. Inst. d. Wiener Univ.*, 1922, xxiv, 85.

The author reports the results of histologic investigations made on a series of nerve cicatrices due to gunshot injuries. Some of the sections were stained with acid fuchsin light green according to the technique of Alzheimer, and others by the method of Bielschowsky.

In the constricting fibers of Buengner fine granules were found which infiltrated the fibers longitudinally. From these acidophile granules filamentous formations extended which were surrounded by a sheath derived from the plasma of the cells. The Buengner constricting fibers were regarded as derivatives of the sheath cells of Schwann rather than connective-tissue cells. They are ectodermal formations, a kind of peripheral glia cells and, like the glia cells, can form fibrils.

It is impossible to say definitely whether the new axis cylinder arises from these formations directly or whether the latter merely furnish the material for its construction. No one today denies the sprouting of the fibers from the center, but it is certain that the growing fibers can be formed only if material from the surroundings is supplied them. Consequently both factors are necessary—the emerging fibers and the sheath cells of Schwann.

In addition to the acidophile granules, there are also basophiles which, according to their behavior toward different dyes, must be designated as lipid granules. It is possible that these are the preliminary stage of medulla formation. In that case, the Buengner constricting fibers would also take part in the formation of the medullary sheath.

MOSZKOWICZ (Z).

SYMPATHETIC NERVES

Bruening, F.: The Trophic Function of the Sympathetic Nerves (Die trophische Funktion der sympathischen Nerven). *Klin. Wchnschr.*, 1923, ii, 67.

Bruening states that the trophic disturbances following a nerve injury are due to irritation exerted by the resulting neuroma which acts on the sympathetic fibers coursing with the spinal nerves. After operative removal of the neuroma the trophic injuries heal in a very short time. The same result is achieved by interrupting the conduction of the irritation by peri-arterial sympathectomy. Bruening recently observed a case in which, following this operation, there was a lowering of the tone of the sympathetic nervous system, not only peripherally from the site of the operation, but also in the regions lying central to it. As a result of the interruption of the main conduction of the irritation in the sympathetic nerve, the tone was lowered in the entire extremity.

According to Leriche, the cause of vasomotor-trophic disturbances is the formation of small neuromata in the sympathetic nerve fibers similar to those which appear occasionally after injuries of the lower extremities without injury of the larger nerve stems. It is possible that the neuromata repeatedly found in the appendix are the cause of all the symptoms, and that a similar irritation giving rise to the formation of postoperative ulcers is produced in the sympathetic nerves by operative cicatrices in the stomach or intestine. Section of the sympathetic nerve leads to hypertrophy, and the latter condition often results also from neurofibromatosis.

Bruening summarizes as follows:

An abnormal increase in the tone of the sympathetic nerve leads to degeneration of tissue; a decrease acts in the sense of a regeneration of tissue; and elimination or an extensive reduction leads to hypertrophy.

BERNARD (Z).

Montgomery, M. L.: The Effect of the Ablation of the Superior Cervical Sympathetic Ganglia upon the Continuance of Life. *Endocrinology*, 1923, vii, 74.

In his investigations the author used three types of animals, namely, rats, rabbits, and cats. The rats were of young, healthy stock, especially selected. The rabbits and cats varied considerably in age. The operative work was done during the months of February and March, 1921.

After exposure of the upper portion of the vago-sympathetic chain the sympathetic was carefully separated from the vagus in the cephalic direction until the superior ganglion was reached. This ganglion was then separated from the adjoining vagus ganglion. In effecting the separation considerable difficulty was experienced in the cats as in these animals the two ganglionic bodies are intimately associated. In the rats this association is less intimate, and in rabbits the bodies are distinctly separated.

SUMMARY OF EXPERIMENTS

Animal	Age	Sympathetic ganglionic tissue; histologic examination	Days between operation and sacrifice of animals	Condition of lungs	"Paradoxical" eye reflex test
Rat 1	117 days	R: present L: present	17	No examination	No examination
Rat 2	120 days	R: absent L: absent	14	No examination	No examination
Rat 3	120 days	R: absent L: absent	14	No examination	No examination
Rat 4	100 days	R: absent L: absent	20	No examination	No examination
Rat 5	100 days	R: absent L: absent	20	No examination	No examination
Rat 6	100 days	R: absent L: absent	20	No examination	No examination
Rat 7	107 days	R: absent L: absent	19	No examination	No examination
Rat 8	107 days	R: absent L: absent	19	No examination	No examination
Cat 102	Young female	R: absent L: absent	56	Consolidated areas right lung	Positive
Cat 103	Male 1 year	R: absent L: absent	58	Normal	Positive
Cat 104	Six mos.	R: doubtful* L: absent	68	Normal	Positive
Cat 105	Eight mos.	R: no exam. L: no exam.	11 Died	Congestion lower half both lungs	No examination
Cat 106	Old animal	R: absent L: absent	40	Normal	R: positive L: blind
Cat 107	Old animal	R: absent L: absent	38	Normal	Negative
Rabbit 1	Old animal	R: present L: present	49	Congestion and aeration upper right lung	Positive
Rabbit 2	Young animal	R: absent L: absent	42	Normal	Positive
Rabbit 3	Young animal	R: absent L: absent	39	Normal	Positive
Rabbit 4	Young animal	R: absent L: absent	30	Normal	Positive

*A group of nerve cells were found whose connections were doubtful though the examination seemed to indicate that they were vagal rather than sympathetic.

After the separation had been effected the dissection was carried farther cephalad until the upper sympathetic roots were found. These fibers were then carefully pulled loose from their cephalic attachments, the sympathetic nerve was carefully sectioned about 1 cm. below the ganglion, and the ganglion removed.

After the operation the animals were permitted to live for a period of two weeks to two months. They were then killed and examined. Especial attention was given to the lungs, and to an examination with the binocular microscope of the region of operation

to determine whether any ganglionic tissue remained. The carotid artery and vagus nerve were then picked up and sectioned well below the region of the vagus ganglion. Dissection of these structures, together with the surrounding connective tissue, was carefully carried to the base of the cranium, from which all connective tissue was loosened. The carotid and vagus were cut as they entered the cranium, the tissue being then removed and fixed in 10 per cent formol. Microscopic examination was made of all the animals reported except one. This showed complete ablation of the ganglia from seven rats, four cats, and three rabbits, all of which survived. With the exception of Cats 102 and 105 and Rabbit 1, the lungs of all of these animals were normal.

The fact that these animals survived complete removal of the ganglia argues against the conclusion that these bodies have an endocrine function essential to the continuance of life.

The embryological development of the superior cervical sympathetic ganglia does not seem to set them apart from the rest of the sympathetic system as organs which might possibly have an obscure endocrine function.

CARL R. STEINKE, M.D.

Bruening, F.: Angiospasm in the Pathogenesis of Vasomotor-Trophic Neuroses: Further Experiences with Peri-Arterial Sympathectomy (Der Angiospasmus in der Pathogenese der vasomotorisch-tropischen Neurosen: Weitere Erfahrungen mit der periarteriellen Sympathektomie). *Deutsche med. Wchnschr.*, 1922, xlviii, 1572.

It is not yet known how far upward the vaso-motor-trophic neuroses of angiospasm extend; nothing has yet been proved save the transitory contraction of the radial artery and the arterioles and capillaries. Bruening found from operations that the angiospasm in the arm extends high up, at least to the union of the brachial and axillary arteries.

He reports three cases of his own, in which operation was performed:

Case 1. This was a case of a borderline condition between Raynaud's disease, scleroderma, and acroparæsthesia of the right hand. The patient was a woman 47 years old. Operation relieved the pain and improved the trophoneurotic symptoms so that the patient was able to resume handicraft work.

Case 2. This was a case of scleroderma involving both hands of a woman 57 years old. Operation relieved the pain and improved the trophoneurotic symptoms, so that the patient could write again.

Case 3. In this case there was beginning trophoneurotic gangrene in the toes of both feet, particularly the left foot, with spastic paraparesis due to transverse inflammation of the spinal cord following tuberculous spondylitis. The patient was a man 23 years old. Operation brought retrogression of the trophoneurotic disturbances, especially the gangrene.

In all three cases, as also in one other case of Raynaud's disease reported by Kuemmell and Lotzsch, operation showed the brachial or femoral artery to be unusually narrow and the peri-arterial

sympathectomy resulted in cure or improvement. In the author's opinion, the extraordinarily small caliber of the main artery is not a congenital vascular anomaly, but due to a contraction (spasm) of the vessel, which in the diseases under discussion extends to the uppermost portion of the main artery of the extremity. As the removal of the peri-articular sympathetic nerve plexus will cause this spasm to disappear after a preliminary increase in intensity, we may look upon it as the result of irritation in the sympathetic nervous system. The angiospasm in Raynaud's disease, however, cannot be considered the disease itself; it is only its most important symptom, but its removal may bring about great improvement and possibly a cure. The basic disease is an abnormal increase in the tonus of the sympathetic nervous system.

With regard to the indications for sympathectomy the author makes the following statements:

1. Success may be expected from the operation in all cases of vasomotor-trophic neuroses accompanied by angiospastic conditions.

2. A temporary good result may be expected in angiospastic conditions (vascular crises) in the presclerotic stage of arteriosclerotic gangrene and intermittent claudication.

3. The operation is perhaps relatively indicated in gangrenous frostbite and endarteritic gangrene and their sequelæ, inasmuch as the postoperative hyperæmia favors nutrition.

4. When there is trophic damage to the tissues following nerve injuries, it is indicated if it is impossible to allay the irritation of the sympathetic nervous system by other operative measures such as neurolysis, nerve resection, etc.

5. It is contra-indicated in sclerotic and diabetic gangrene.

In the three cases operated upon by the author a cure was obtained in the first and third, and in the second, in which severe secondary changes had already appeared, there was marked improvement. Particularly remarkable was the prompt cessation of the pain in the first case.

The results of operation clearly demonstrate that the factor responsible for the vasomotor-trophic disturbance is less a deficiency in nerve function than an increased irritability of the nervous system.

The operation must be performed as high as possible. In vasomotor-trophic disturbance following injury it should be done above the site of injury. The artery must be well isolated for about 8 cm. Small branches of the artery, the division of which is unavoidable, should not be divided close to their exit from the main artery. Larger lateral branches can always be avoided.

SONNTAG (Z).

Florescu, A.: Observations on a Case of Peri-Arterial Sympathectomy (Einige Betrachtungen ueber einen Fall periarterieller Sympathektomie). *Clujul med.*, 1922, iii, 279.

In the case reported, a case of endarteritis obliterans with gangrene of the foot, the femoral artery appeared on exposure as a hard, pulseless cord. Peri-arterial sympathectomy was done according to the method of Leriche, but the gangrene progressed. When the thigh was amputated in its upper third six days after the first operation, a severe spurting hæmorrhage occurred from the femoral arteries.

For the treatment of tuberculosis of the bones and joints the author suggests the production of an active hyperæmia of the affected parts by peri-arterial sympathectomy, iodine, light baths, and heliotherapy supplemented by passive hyperæmia induced by Bier's method.

STAHL (Z).

SURGERY OF THE ABDOMEN

ABDOMINAL WALL AND PERITONEUM

Ranzi, E.: The Physiology and Pathology of the Peritoneum (Ueber Physiologie und Pathologie des Peritoneums). *Wien. med. Wchnschr.*, 1922, lxxii, 1479, 1547.

The author no longer gives injections of nucleic acid to increase the bactericidal power of the peritoneum, as suggested by von Mikulicz. For the prevention of postoperative adhesions he advises gentleness at operation, avoidance of injury to the serosa, careful peritonization, effective control of bleeding, and stimulation of peristalsis after the operation. In peritonitis the cause must be removed if possible: the vermiform appendix always, a diseased gall-bladder usually, and if the patient's condition permits, a perforated peptic ulcer, which under other circumstances might be sutured and closed off by gastro-enterostomy. Irrigation is to be employed only when the peritonitis seems to involve the entire abdominal cavity.

Of the greatest importance in the management of peritonitis is operation at the earliest possible moment. In many cases the establishment of an intestinal fistula is beneficial. The use of tampons has been abandoned. Drainage tubes are inserted only when a severely infected area is found at the site of the primary perforation. When intraperitoneal hæmorrhage has occurred, the blood is removed, filtered through gauze, and after the addition of a 2 per cent solution of sodium citrate, is injected into a vein in the arm. SLAZER (Z).

Costain, W. A.: Lymphaticostomy in Peritonitis. *Surg., Gynec. & Obst.*, 1923, xxxvi, 365.

Treatment of septic and purulent peritonitis by drainage of the thoracic lymph duct in the neck is apparently curative. The author first produced in dogs a uniformly fatal peritonitis by ligating the appendix and meso-appendix, thereby producing gangrene. Twenty-four hours later he sectioned and drained the thoracic duct at the neck. Recovery resulted in seven days. The operation was followed by recovery also in the case of a 9-year-old girl with diffuse pneumococcic peritonitis.

The damage done the thoracic duct by the operation was overcome by the establishment of a collateral flow of lymph.

Experimentation demonstrated that in peritonitis a fatal absorption occurs through the thoracic duct. It not only proved this fact, but it disproved a fatal absorption through the subperitoneal capillaries or through the diaphragmatic lymphatics to the anterior mediastinal lymphatics and the right lymphatic duct. It showed, moreover, perhaps the most extraordinary fact of all, that when a fatal absorp-

tion is overcome, the peritoneal cavity is capable of looking after such a formidable structure as a necrotic appendix.

In the dogs operated upon by the method described the pus remaining in the peritoneal cavity disappeared without abdominal drainage and without apparent pocketing. The manner in which this was affected is a matter of conjecture.

OSCAR E. NADEAU, M.D.

GASTRO-INTESTINAL TRACT

Kopeloff, N.: Is the Stomach a Focus of Infection? *Med. Press*, 1923, n.s. cxv, 154.

Kopeloff states that the stomach should not be regarded as a possible focus of infection. In his investigation, repeated analyses by the Rehfuß method in the same case yielded different curves, and there was little constancy in the bacterial species. He found that there is no correlation between the degree of acidity and the species or numbers of bacteria found. In the absence of gastric lesions, the most important factor influencing the bacterial content of the stomach is swallowed saliva. The bacterial content of the food ingested is also of importance. BEN N. WADE, M.D.

Bennett, T. I.: The Modification of Gastric Function by Means of Drugs. *Brit. M. J.*, 1923, i, 366.

By careful experimental work on normal persons Bennett found that only a very limited number of drugs exert a definite action on gastric function. This is in direct contrast to the enormous number of drugs and remedies which have been used in gastric disorders. Objective proof of the action of most of them has not been shown, and modern textbooks of pharmacology contain few references to drugs which will modify gastric secretion. It has been only recently that experimental work has cleared up many of the errors and traditional beliefs of the earlier writers.

Bennett found that atropine sulphate diminishes gastric secretion and is most effective when given by mouth, well diluted with water. When given hypodermically, its action is not so constant or effective. Atropine also delays gastric emptying and prevents reflex gastric spasm. Its local effect on the gastric mucosa is as definite as its action on the conjunctiva.

To increase gastric secretion pilocarpine was used in the author's experimental work, but its action was inconstant. Moreover, it produced salivation, and the saliva, when swallowed, had a diluting effect on the stomach contents sufficient to reduce the acidity below its normal figure.

The drugs affecting gastric secretion after its evolution are those which neutralize acid secretion and those replacing a deficiency of hydrochloric acid. The effects of the alkalies are markedly influenced by the time of their administration. When sodium bicarbonate is given before the ingestion of food it is rapidly neutralized, and after the meal there is an actual increase in the secretion of hydrochloric acid.

When sodium bicarbonate is given after a meal the acid already secreted is fully neutralized and there is a period of neutrality lasting nearly an hour. Subsequently, however, there is a rapid rise in the gastric acidity to its usual level. Bennett's observations lead him to conclude that sodium bicarbonate has a tendency to excite the gastric mucosa to increased secretion, and that this effect more than counterbalances its neutralizing action. Magnesium oxide and bismuth oxycarbonate have a far less stimulating effect than sodium bicarbonate and much greater neutralizing power. The proper time to give these drugs in cases of hyperacidity is after the ingestion of food. Sodium bicarbonate is of most value in the unusual type of case in which there is an excess of mucous secretion and little or no hydrochloric acid.

In cases of deficiency of hydrochloric acid, large quantities of this drug must be given. Small doses, such as those usually prescribed, have no more than a psychic effect. Bitters do not increase the hydrochloric acid.

Among the drugs affecting gastric motility, atropine was found to delay gastric emptying and to prevent or relax gastric spasm. Strychnine given in very small doses increases gastric peristalsis and causes the stomach to empty more rapidly than normally. When given in larger doses, however, it first produces violent peristaltic waves and pylorospasm which delay emptying. Adrenalin was found to have no action on the stomach whatever, whether given in large doses by mouth or hypodermically.

BEN N. WADE, M.D.

Matheson, A. R., and Ammon, S. E.: Observations on the Effect of Histamine on Human Gastric Secretion. *Lancet*, 1923, cciv, 482.

The authors made careful observations on the action of small doses of histamine on the gastric secretion of twelve hospital patients who were normal so far as gastric complaints were concerned. The one-hour test meal was employed to compare the nature of the gastric response to a constant test meal (tea and toast) with the histamine response. The fasting stomachs were first emptied of their overnight secretions by means of a Rehfuß tube. Ten and twenty minutes later, aspiration of the entire stomach contents was again performed to determine the rate and nature of the "resting" secretion. Five minutes later a dose of histamine was given hypodermically, and after this the stomach contents were completely aspirated at ten-minute intervals beginning five minutes after the injection,

until the secretion had either ceased or returned to normal. The preparation of histamine used was ergamine acid phosphate. This was dissolved in water so that 1 c.cm. of the solution contained 1.5 mgm. of the salt. Fresh preparations were used to guard against deterioration. The gastric contents obtained were measured and examined for total acidity, free hydrochloric acid, pepsin, mucus, and bile.

The amount of gastric juice secreted in a given time, the total acidity, and the free hydrochloric acid all showed an increase after the administration of histamine. This began within fifteen minutes and reached a maximum within a half-hour. The decline from the maximum was more gradual than the rise. The free and total hydrochloric acid curves are parallel in their course. The maximum acidity varied, ranging from 75 to 125.

The peptic curve followed the secretion and acidity curves but was less regular. It reached its maximum in a shorter time than either the acidity or the rate of secretion.

Mucus was found in abundance before the injection of histamine, but disappeared rapidly soon afterward. It is possible that the absence or neutralizing effect of the mucus is an important factor in the great rise of the acidity. Bile was found infrequently.

Histamine has a vasodilating action and shortly after its injection produces an intense flushing of the face. It has no other apparent action, however, as it causes no other symptoms.

From these observations the authors conclude that histamine has a definite action in exciting the secretion of gastric juice, and that it may be employed for this purpose as a therapeutic agent or to determine the state of the gastric secretory function.

BEN N. WADE, M.D.

Pinard, M.: Syphilis of the Stomach (*Syphilis gastrique*). *Bruxelles méd.*, 1923, iii, 380.

Syphilis of the stomach is frequently overlooked. The author saw nine cases in a little over a year. Anatomically the lesion is usually a diffuse gastritis, but there may be a localized gumma surrounded by more or less diffuse infiltration. The edges of the ulcer in the mucosa and submucosa are thick and hard and its base is covered with a sticky yellow material. The ulcer may become healed, or perforate and cause adhesions to neighboring organs, or cause pyloric obstruction or hour-glass stomach by cicatricial contraction.

In the author's opinion syphilitic ulcer is the most common stomach ulcer, but the least often recognized. A period of gastric disturbance is followed by hæmorrhage, vomiting, pain in the back and chest, great loss of weight, deterioration of the general health, and night pains. Often the hæmorrhage is severe.

Four forms of gastric syphilis are distinguished clinically: (1) that with tumor, (2) that with chronic gastritis, (3) that with pyloric obstruction, and (4) that with hour-glass stomach.

KELLOGG SPEED, M.D.

Schur, H.: The Origin of "Hunger Pains" and Their Significance in the Diagnosis of Ulcer (Die Genese der "Hungerschmerzen" und ihre Bedeutung fuer die Ulcusdiagnose). *Wien. klin. Wchnschr.*, 1922, xxxv, 684.

Schur denies the existence of so-called "hyperacidity neuroses." "Hyperacidity pains," he believes, are ulcer pains, and their cause is the inflammatory change which, at operation, he has been able to observe frequently in the neighborhood of an ulcer. The impulses producing these pains are contractions of the muscles surrounding the inflamed area. The hydrochloric acid in the stomach is not a factor as the pains do not coincide with the high level of gastric acidity. In summing up, Schur states that hunger pains demonstrate the localization of an inflammatory affection in the region of the pylorus and when they are periodical prove that this affection is an ulcer. **PORGES (Z).**

Hunt, E. L.: Leiomyoma of the Stomach, with the Report of a Case. *Boston M. & S. J.*, 1923, clxxxviii, 349.

According to Mallory, the term "leiomyoma" means a slowly growing tumor made up of smooth muscle fibers. When mitotic figures, which indicate fairly rapid growth are present, the tumor is a "leiomyosarcoma." In 1919, in an exhaustive search of the literature, Nasseti found the reports of 140 myomatous tumors of the stomach. Of this number, the relatively benign myomatous tumors constituted less than one-third.

In a review of the literature since 1919 Hunt found only nine cases. These he summarizes briefly. His own case was that of a man 30 years of age who was admitted to the hospital complaining of heartburn of two months' duration and with a history of an attack of hematemesis and melena eight months previously and an attack of acute indigestion three months previously. Examination revealed a severe secondary anæmia. Blood was found in the stools. The X-ray showed an irregular duodenal cap and a persistent vacuole on the duodenal border. Two transfusions were given, and a diagnosis of duodenal ulcer was made. At operation, a smooth mass, the size of a lemon, was found just above the pylorus. This extended under the liver and was adherent to the first part of the duodenum. A pylorotomy followed by a posterior gastrojejunostomy was done. Convalescence was rapid. After the operation the X-ray demonstrated a functional stoma, but examination eleven months later revealed a rounded tumor in the epigastrium the size of an egg. This was interpreted as a recurrence, and a second operation was advised but was refused by the patient.

In general, these tumors are characterized by a circumscribed growth of smooth muscle cells, the increase in size distorting their relations until they push outward beneath the serosa or inward beneath the mucosa. Their most common location is the greater curvature or near the pylorus, but they may occur at any point in the stomach. The in-

cidence of the subserous and submucous types is about the same, and either may be sessile or pedunculated. In the submucous type particularly, secondary changes such as hæmorrhage, ulceration, and cyst formation, are common.

The gross specimen in the author's case consisted of an ovoid mass, the shape of a uterus, which was adherent to the pylorus and the first part of the duodenum, extended into the gastrocolic omentum, and projected into the lumen of the duodenum by a rounded nodule, the central portion of which was ulcerated away, this accounting for the persistent vacuole shown by the X-ray. In consistency it resembled a uterine myoma and on cut section was firm and showed bands and whorls of fibers. The microscope demonstrated bundles of spindle cells which in general were thicker and had larger nuclei than those of normal gastro-intestinal muscle. No regular mitotic figures were found. The fibrous stroma was scanty. The pathologic diagnosis was leiomyoma.

The author concedes that the clinical diagnosis of leiomyoma of the stomach is seldom possible, but he believes that the condition should be recognized in a certain percentage of cases. In a table he gives the relative frequency of the various symptoms which may be produced by mechanical, ulcerative, or toxic causes. Twelve per cent of these tumors are silent and are recognized only at autopsy. Forty-five per cent are palpable. Pain related to meals is present in 50 per cent of the cases. In 22 per cent there is dyspepsia, and in 42 per cent evidences of hæmorrhage and secondary anæmia are noted. The X-ray may show an extrusion defect, an hour-glass constriction, interference with peristalsis, incisura, cardiospasm, or hyperperistalsis with an eight-hour residue.

In eight of the ten cases reviewed by the author complete recovery resulted. In one, perforation occurred, and in the author's case a recurrence developed. Early operation offers an excellent prospect of cure. If operation is delayed there is danger of hæmorrhage, perforation, or recurrence.

DENNIS H. KELLY, M.D.

Ramond, F., and Zizine, P.: A Search for Autolytic Products Applied to the Early Diagnosis of Gastric Cancer (Application au diagnostic précoce du cancer gastrique de la recherche des produits autolytiques). *Bull. et mém. Soc. méd. d. hôp. de Par.*, 1923, xlvii, 196.

Histologic examination of cancerous tissue shows that the neoplastic cell has only transient vitality, quickly undergoing autolytic disintegration. The ordinary products of autolytic degeneration are to be found in the blood and urine. Several investigations have demonstrated that such products are principally amines. The authors have proved that they also include polypeptids which form the stage between the peptid and amine. The authors sought for these substances in the blood, especially the serum.

In tabular form are given the findings in the cases of non-cancerous persons and seventeen cancerous patients. In the cases of cancer all the nitrogenous substances in the blood and urine were increased, a fact indicating an increase of the nitrogen metabolism, due chiefly, the authors believe, to the autolytic process. This process occurs also in cases of rapid emaciation, acidosis, and other conditions, but whenever cancer is suspected it will be easy to eliminate the other conditions. On the basis of such findings in three doubtful cases, the authors were able to make a diagnosis of gastric cancer which was confirmed at operation.

W. A. BRENNAN.

Haden, R. L., and Orr, T. G.: Chemical Changes in the Blood of the Dog After Pyloric Obstruction. *J. Exper. Med.*, 1923, xxxvii, 377.

The authors report chemical studies of the blood and urine of four dogs following pyloric obstruction. These confirm the observation made by other workers that there is a fall in the chlorides and a rise in the carbon-dioxide combining power of the plasma. There is also a marked rise in the non-protein nitrogen of the blood, consisting mainly of urea nitrogen and undetermined nitrogen.

The fall in chlorides is not due to the loss of chlorides in the gastric juice; the chlorine probably becomes bound in the process of protein destruction.

There is a close relation between the fall in chlorides and the protein destruction.

A study of tetany should include the protein metabolism as well as that of the inorganic salts, since it is possible that tetany is due to protein split products rather than to alkalosis.

The chemical changes following pyloric obstruction are essentially the same as those following high intestinal obstruction.

SAMUEL KAHN, M.D.

Haden, R. L., and Orr, T. G.: Chemical Changes in the Blood of the Dog After Intestinal Obstruction. *J. Exper. Med.*, 1923, xxxvii, 365.

The authors report a study of the non-protein nitrogen, urea nitrogen, uric acid, creatinine, amino-acid nitrogen, sugar, and chlorides of the blood, and the carbon-dioxide combining power of the plasma in normal dogs and those which had had some type of intestinal obstruction.

Ligation of the duodenum, ligation of the duodenum with gastro-enterostomy, and ligation of the upper half of the ileum are followed by a fall in the chlorides, a rise in the non-protein nitrogen and urea nitrogen of the blood, and a rise in the carbon-dioxide combining power of the plasma. The uric acid, creatinine, amino-acid nitrogen, and sugar show no significant changes. The fundamental change is a fall in the chlorides followed by alkalosis. The degree of alkalosis depends upon the rate of formation of carbonate, the rate of excretion by the kidneys, and the extent of neutralization of the carbonate by acid bodies formed during the intoxication.

The fall in chlorides is probably due to utilization of the chlorine ion in the course of the intoxication. It is suggested that this use of chlorine is a protective measure on the part of the body.

There are indications that high intestinal obstruction should not be treated by the administration of alkalies.

The urea nitrogen is a good index of the protein destruction.

Ligation of the ileum at the ileocaecal valve is followed by little increase in the nitrogen and no change in the chlorides or the carbon-dioxide combining power of the plasma.

The close similarity of the blood findings in intestinal obstruction, lobar pneumonia, and serum disease suggests that these different conditions may have a common chemical basis.

SAMUEL KAHN, M.D.

Fischer, A.: The Typical Forms of Late Obstruction of the Small Intestine Following Suppurative Appendicitis (Ueber die typischen Formen der nach eitrigen Appendicitiden entstandenen spaeteren Duenndarmilei). *Gyógyászat*, 1922, xlix 664.

The author calls attention to the important part played by the lowest coil of the ileum in the origin of late obstruction following acute appendicitis. In five of seven such cases he found the following typical changes: (1) thickening of the serosa and rigidity of the entire intestinal wall, (2) shrinkage of the corresponding mesentery, and (3) the presence of band-like pseudoligaments. These changes had caused volvulus and strangulation.

In every case the author resected the twisted portion of intestine and made an anastomosis between the ileum and transverse colon. A cure resulted in every instance. Fischer believes a resection should be done even when the intestine does not show necrosis, as otherwise the volvulus may recur.

VON LOEMAYER (Z).

Meulengracht, E.: Two New Cases of Strictures of the Small Intestine with Pernicious Anæmia (Zwei neue Faelle von Duenndarmstrikturen mit pernizioeser Anaemie). *Ugesk. f. Læger*, 1922, lxxiv, 1401.

To the cases of intestinal stricture with pernicious anæmia which he reported in 1920, the author adds two others. The first was that of a 64-year-old woman with three strictures of a tuberculous nature, who died twelve hours after the resection, and the other that of a man of 52 years with an intestinal stenosis, apparently of cicatricial nature, which developed after numerous laparotomies.

The associated anæmia Meulengracht regards as a disease picture worthy of study. He believes it should be interpreted as an intoxication anæmia due to the direct action or the products of bacteria, or to the absorption by the dilated, inflamed, and infected segment of intestine of substances which under normal conditions would not pass through the intestinal mucous membrane.

DRAUPT (Z).

Symonds, C.: The Therapeutic Value of Vomiting in Intestinal Obstruction. *Practitioner*, 1923, cx, 205.

The free administration of fluids, principally water, in suspected intestinal obstruction or acute appendicitis is sound practice.

After operation, vomiting should be encouraged, especially in advanced cases, until the rejected material is free from bile.

When hiccough is present and vomiting does not follow the free use of fluids, the stomach should be washed out every four hours in severe cases and two or three times daily in the others.

The injured bowel will maintain obstruction for from two to four days. During this period the best treatment is the encouragement of vomiting.

The reflexes should be allowed to come into operation as soon as possible by omitting the pre-operative dose of morphine, by performing the operation as quickly as possible and under minimum anaesthesia, and by withholding morphine until the rejected material is free from bile.

When free vomiting has occurred, the symptoms of toxæmia are absent and therefore the prospects of recovery after operation are greatly increased.

SAMUEL KAHN, M.D.

Abbott, C. R., and Hunt, E. L.: Intestinal Obstruction by Gall-Stones. *Boston M. & S. J.*, 1923, clxxxviii, 390.

Gall-stones escaping into the small intestine through a perforation of the gall-bladder may be large enough to block the progress of the contents of the alimentary canal at the time of their escape or may cause such obstruction after they have become larger from accretion. Obstruction caused by true fæcoliths is very unusual. The most common site for the arrest of a gall-stone is the jejunum.

Enteroliths may induce sudden acute obstruction, or if too small for this, inflammation, ulceration, and perforation. If a large stone is present, the intestinal walls above become dilated by the accumulation of intestinal contents at the point of obstruction. This is followed by hypertrophy with impairment of the circulation which causes inflammation and ulceration, especially in the mucous membrane.

The clinical picture is that of acute or chronic obstruction of the small intestine. Stones that reach the colon seldom cause obstruction.

A barium-meal examination should not be attempted if there is any question of acute obstruction.

The patients are advanced in years and usually give a history of previous gall-bladder disease and atypical indigestion.

In the acute obstructive stage the onset is more or less sudden and characterized by vomiting which becomes more frequent and by the development of colicky pain in the umbilical region. The onset of the toxic stage varies according to the size of the stone, its rate of travel, and the completeness and the site of the obstruction. The higher the obstruction, the more violent the symptoms. Other symp-

toms are continuous pain and constipation. Noisy flatus heard in the small bowel early helps to differentiate obstructive ileus from the paralytic type. "Visible coils" have a similar significance.

In cases of high intestinal obstruction operation should be done early, before distention is pronounced. No cathartic should be given. The intestine should be incised longitudinally opposite its mesenteric attachment, and the calculus removed. Proximal enterostomy with drainage is indicated when there is marked toxæmia or overdistention. The prognosis is always grave.

The complete histories of four cases are given, together with the findings of chemical analyses of the calculi.

C. F. ANDREWS, M.D.

Tinkham, H. C.: Chronic Arteriommesenteric Obstruction of the Duodenum. *Boston M. & S. J.*, 1923, clxxxviii, 397.

Arteriommesenteric obstruction is caused by an abnormal pressure on the duodenum by the mesentery and the superior mesenteric artery.

A potential factor causing this obstruction is an abnormal position of the small intestine, which not only produces an abnormal tension on the mesentery, but also changes the direction of the pull, making it more nearly parallel with the vertebral column.

As the intestine is freely movable, it is evident that the degree of obstruction will vary with the position of the body, and at intervals may be relieved altogether. The obstruction is always associated with some debilitating or enervating condition, and is often found with other definite pathologic conditions.

This disease has no characteristic symptoms. Most of the patients are more or less neurasthenic, and many have some other chronic disease. In the more severe cases the symptoms are referred definitely to the stomach, and are very similar to those of pyloric obstruction or chronic dilatation of the stomach. Definite symptoms of toxæmia and malnutrition are presented. X-ray examinations are not materially helpful in the diagnosis.

The treatment consists of measures to improve the general nutrition and posture to relieve the obstruction. In a large percentage of cases this is all that is needed. Medical management should be tried before surgery.

Duodenojejunoscopy seems to be the most logical operation, but three of the author's cases were entirely relieved by posterior gastro-enterostomy.

The histories of thirteen patients with this condition are given.

C. F. ANDREWS, M.D.

Carrie, A., and Keller, J.: The Diagnosis of Duodenal Ulcer by Means of a Rapidly Made Series of Roentgenograms (Le diagnostic des ulcères duodénaux par la méthode des radiographies rapides en série). *Presse méd.*, Par., xxxi, 130.

Cole's method of making a rapid series of roentgenograms has been adopted for the diagnosis of

duodenal ulcers, gastric lesions, and gall-stones. Great rapidity is not desired. Eighteen films are made in from five to fifteen minutes. The exposure must be rapid to guard against respiratory or peristaltic movements. The patient to be thus examined is placed in a recumbent position with a pillow under the chest.

Bulb deformities may be caused by three conditions, separately or combined, viz., lesions of the mucosa and the walls, lesions of peri-duodenitis, and spasms. The authors believe that all bulb deformities may be reduced to three fundamental types: the niche, the incisura, and bulbar retraction.

The shadow cast by the niche is just outside the normal limits of the bulb and is characterized by the irregularity of its borders and its acute angles. It is most often found on the upper border of the bulb and represents the crater of an ulcer.

The incisura, on the other hand, is a clear area within the limits of the bulb outline. This is of two forms, the organic incisura, with irregular borders, representing an ulcer, and the spasmodic incisura, which is larger and deeper and has rounded edges. The latter may border on a niche or lie just opposite a point of ulceration.

Bulbar retractions assume the shape of a maltese cross, a coral branch, or a tortuous canal. They are difficult to define as they correspond to an incomplete filling of the bulb and are not constant.

In conclusion the author states that the X-ray examination must be considered only a part of the clinical examination. KELLOGG SPEED, M.D.

Saue, E.: Roentgen Diagnosis in Diseases of the Duodenum (Ueber die Roentgendiagnose der Duodenalerkrankungen). *Mitt. a. d. Grenzgeb. d. Med. u. Chir.*, 1922, xxxv, 555.

This is a review of the roentgen symptoms and a discussion of roentgen technique, with special regard to fluoroscopy. In forty-one cases in which positive duodenal findings were present it was possible to confirm the X-ray diagnosis by operation in only ten as most of the cases were given medical treatment.

The author reports also the roentgen findings in five cases in which a diagnosis of duodenal diverticulum with or without ulcer was made. In a case of carcinoma of the pylorus invading the duodenum the bulbus duodeni was deformed. In a similar case, which had been free from symptoms until the development of a partial ileus, there were characteristic changes in the bulb and pyloric stenosis. GRASHEY (Z).

Angeli, A.: Colloid Carcinoma of Vater's Papilla: A Clinical and Anatomic-Pathological Study (Carcinoma colloide della papilla del Vater: contributo clinico e anatomico-patologico). *Riforma med.*, 1923, xxxix, 28.

The author's case of carcinoma of Vater's papilla was that of a man 59 years old. The carcinoma was situated at the point of discharge of the common duct into the duodenum and was the size and form

of a small mandarin orange. The duodenal mucosa and the pancreatic tissues were not involved. The nucleus of the tumor was Vater's papilla. The colloid nature of the growth, verified by histologic examination, is especially unusual. Angeli has not found another such case in the literature although the possibility of colloid cancer of the bile ducts is admitted. The case he reports represents a very advanced state of degeneration. The autopsy revealed, in addition, a large interhepatic biliary cyst. There were no metastases.

W. A. BRENNAN.

Reh, H.: Roentgen-Ray Treatment of Extensive Ileocecal Tuberculosis (Roentgenheilung ausgedehnter Ileocecaltuberkulose). *Zentralbl. f. Chir.*, 1922, xlix, 1661.

In all cases of intestinal tuberculosis, whether the process arises in the subserous or submucous layer, an attempt should be made to localize it with the aid of deep radiation with the roentgen-ray, provided high fever, obstinate diarrhoea, and positive blood findings do not indicate the more quickly effective operative procedures. To illustrate the results of deep roentgen-ray therapy the following case is cited:

A 36-year-old woman suffered for eight years with diarrhoea, night sweats, and nervous complaints so severe that she contemplated suicide. During an operation for retroflexion, wide-spread tuberculosis of the ascending colon, caecum, and lower ileum was discovered. An ileocecal resection was next considered, and deep roentgen-ray therapy—six sittings of ten minutes' duration each, applied over four areas in three months—was given. Since the complaints and diarrhoea continued, operation was performed. After separation of adhesions, the caecum was found free from ulceration, presenting only thickening of the wall at two points. In the ileum were three dense strictures and single calcified tuberculous nodes. Above the strictures the ileum was entirely normal. GRAUHAN (Z).

Lossen, H.: Roentgen Observations on the Fate of Intestinal Irrigations of Different Quantities, Especially from the Therapeutic Viewpoint (Roentgenbeobachtungen ueber das Schicksal verschieden grosser Darmeingieessungen unter besonderer Beruecksichtigung therapeutischer Gesichtspunkte). *Fortschr. a. d. Geb. d. Roentgenstrahlen*, 1922, xxx, 48.

Intestinal injections of less than 250 c.cm., especially when given with an enema syringe, do not reach beyond the ampulla of the rectum, whereas those of more than 350 c.cm., given with an irrigator, enter first the lower sections of the large intestine and later the upper portions. It therefore follows that when it is desired to introduce a drug directly into the circulation through the vena haemorrhoidalis, thus evading the portal circulation (in congestion of the liver, for example), the drug should be administered with an enema syringe. Substances intended to reach more distant segments of the in-

testines, such as nutritive and glucose enemata and injections of sodium carbonate, should be given in quantities ranging from 250 to 500 c.cm. In the author's experience the addition of common salt is of little value.

Groedel has found that when more than 1 liter of fluid is introduced, it passes the ileocaecal valve. The possibility of influencing the small intestine medicinally in this way is therefore not to be disregarded.

On technical grounds it was impossible to follow the fate of suppositories, but it is evident that as the particles of the drug in these are so intimately bound up with fat, which the large intestine cannot split up, such treatment is of little value.

VOLLHARDT (Z).

Rogers, R. R.: Secondary (Acquired) Megacolon.
Ohio State M. J., 1923, xix, 172.

The theories regarding the etiology of Hirschsprung's disease, or megacolon, attribute the condition to numerous factors. The most prominent symptom is chronic obstipation with periods of diarrhoea. Distention of the abdomen, tympany, and at times faecal masses, may be made out on palpation. Pain is uncommon. The stools are thin and putty-like in consistency, and are passed with difficulty.

In more than one-third of the cases only the sigmoid loop is affected, but in some the entire colon is involved. The pathologic picture consists of roughening of the serous coat and obliteration of the teniae and possibly of the longitudinal bands. There may be, therefore, an apparent lengthening of the colon as well as dilation. Microscopic examination shows chronic inflammation, round-cell infiltration, and thickening of the mucosa.

The author reports the case of an infant 1 year of age who had had marked constipation and difficulty and pain in defaecation since birth. On examination, the abdomen was found distended. The thorax was normal except for a rachitic rosary. The anal region was bisected by a thick fibrous raphé. The anal opening was about $\frac{1}{4}$ in. in diameter and could not be stretched sufficiently for the insertion of the tip of the little finger. The stools were flat and about the diameter of a lead pencil. At birth the anus had been almost closed.

At operation the raphé was divided and as good a sphincter as possible was constructed, but the condition was little improved.

When the child was seen again one month later it had had no stool for one week. The abdomen was markedly distended and there was a large mass filling the right side. The temperature was 101 degrees F. Vomiting of material with a decidedly faecal odor occurred. A barium enema showed the sigmoid to be markedly dilated. No barium entered the rest of the colon.

Operation revealed marked enlargement of the colon beginning just above the internal sphincter and extending upward to the hepatic flexure. The

walls of the sigmoid were enlarged and definitely thickened, but the white bands were still present. The sigmoid was emptied into the rectum but nothing further was done. The administration of mineral oil, oil enemas, and massage were necessary to keep the child fairly comfortable. Four months later the author began the administration of atropine to the limit of tolerance. This resulted each time in a normal bowel movement. An X-ray examination of the colon shows no change since the operation.

There are two possibilities to explain this case: either the magacolon had been present since birth and the anal constriction was merely coincident to it, or the colon was normal at birth and its enlargement was due to the forcing of its contents through the abnormally tight sphincter.

WILLIAM J. PICKETT, M.D.

Rabere, M. J.: Pelvic Megacolon: Colectomy After Invagination of the Colon into the Rectum (Megacolon pelvien: colectomie après invagination colorectale). *Bruxelles méd.*, 1923, iii, 281.

The author reports the resection of a dilated pelvic colon by invaginating the portion to be removed into the rectum. After this procedure the distal end of the proximal portion of the bowel was sutured to the cuff formed by the invagination. By this method the many disadvantages of an artificial anus are eliminated and the line of intestinal suture is protected. Resection of the invaginated bowel may be performed very easily through a dilated anal orifice.

LOYAL E. DAVIS, M.D.

Alzona, F., and Valenti, A.: A Case of Developmental Alterations of the Cæcum and Pericolic Membrane (Sopra un caso di alterazioni di sviluppo del cieco e membrana pericolica). *Riforma med.*, 1923, xxxix, 49.

In the case of a patient with pain in the ileocaecal region and chronic constipation it was found in the roentgen-ray examination made eight hours after the administration of a semisolid meal that the small intestine was completely empty and the cæcum, ascending colon, and the first part of the transverse colon formed a twisted mass in the right upper quadrant. The descending portion of the transverse colon first began to distend six to eight hours later. Fifty-six hours after the ingestion of the meal the cæcum and ascending colon were well filled, and after seventy-two hours a residue was still observed.

The diagnosis made on the basis of the X-ray and clinical findings was ectopia and failure of rotation of the cæcum with adhesions between the cæcum and ascending colon, probably congenital and non-inflammatory.

At operation, a part of the cæcum and ascending colon was found wrapped about by a filmy membrane containing numerous vessels disposed parallel with each other and transverse to the great axis of the body. Exteriorization of the cæcum disclosed a long mesentery and absence of lateral, latero-

superior, medial, and intercolic parieto-colic adhesions. The cæcum was higher than normal and more medial.

In the author's opinion, this was a case of non-rotation, non-descent, and non-fusion of the cæcum.

W. A. BRENNAN.

Schmidt, E. O.: The Treatment of Appendicitis with Complications (Zur Behandlung der Appendicitis mit Komplikationen). *Deutsche Ztschr. f. Chir.*, 1922, clxxv, 213.

The author classifies as appendicitis with complications of Grade 1, cases in which the condition begins with infiltration, circumscribed peritonitis, or abscess formation; as appendicitis with complications of Grade 2, cases with diffuse peritonitis or the entrance of the infection into the circulation.

In the management of the complications of Grade 1 the rigid adherence to any one procedure or method of operation is not practical. Each case must be treated according to its indications. In cases in this group, and also cases of fresh appendicitis, in which there is severe inflammation of the cæcum, the care of the stump of the appendix is attended by extraordinary difficulties, the cæcum tears with almost every stitch, and the lower ileum is involved in the inflammatory process (circumstances which may give rise to ileus) the author has performed entero-anastomosis between healthy ileum and the transverse colon eight times up to date (also twice in diffuse peritonitis), with good results. If the entero-anastomosis was impossible without endangering the healthy abdominal cavity, a second abdominal incision was made. This procedure assures the greatest possible protection to the affected organs and favors rapid recovery.

The cure of diffuse peritonitis depends in great part on the patient's constitution; the method of management (dry, instillation of ether, irrigation, etc.) is much less important. Subsequent examinations disclosed that after three months in two cases, and after four and five months in one case each, the anastomosis was no longer in use. For drainage, rubber-tubing wrapped in muslin is preferable to glass tubes.

GUEMBEL (Z).

Jackson, A. S.: Carcinoma of the Appendix. *Arch. Surg.*, 1923, vi, 653.

Carcinoma of the appendix will often be overlooked unless a careful routine examination is made of all appendices removed. Suspicion is cast on the obliterated, or partially obliterated, harmless-appearing type because it has been shown that one in every fifty-three of these is carcinomatous.

In two series, totalling 8,039 appendices, which were examined microscopically by MacCarty and McGrath at the Mayo Clinic, forty were found to be carcinomatous. To determine the prognosis the author followed these forty cases and twenty-four which were treated subsequently. The total number of cases found in the literature with the twenty-four here reported is 317.

Thirty-seven of the sixty-four patients observed in the Clinic were traced. Two had died from accidents or conditions in no way related to the disease, and two had died from postoperative complications. The remaining thirty-three are living and most of them are well. Twelve were well ten to sixteen years after the operation; ten, five to ten years; and two, one to five years. The malignancy was cured in 100 per cent of the patients traced. In only five of the sixty-four cases was a positive surgical diagnosis made of carcinoma. In four other cases the lesion was suspected.

The consequences of failure to recognize the condition and remove the tumor cannot be stated because it is as yet unsettled whether carcinoma of the large bowel may originate in the appendix.

There is little significance in the clinical history of these cases. Fifty per cent of the patients gave a history of previous trouble. The disease is seen twice as often in women as in men. The process should be carefully examined in all patients with a history of previous trouble in the appendix because many malignant appendices may thus be discovered which otherwise might be overlooked.

In the twenty-four cases reported by the author the carcinoma occurred at the tip in twenty-one, at the base in two, and at the middle in one. The tumor *in situ* grossly suggests concretions within the lumen. On transverse section the lumen is seen to be obliterated by a solid growth which is homogeneous and fibrous in appearance. When preserved in formalin, the growth is of an orange color.

There is considerable doubt as to the pathology of these tumors. Graham has divided them into two main types, the spheroidal-cell carcinoma and the adenocarcinoma. In his series, 73.8 per cent of the cases were of the spheroidal type. Adenocarcinoma occurs later in life than the spheroidal type and corresponds more closely to the age at which carcinoma of a similar type occurs in the large intestine. Adenocarcinoma is the more malignant; the spheroidal type rarely invades the cæcum or spreads by metastasis to the abdominal glands.

The microscopic picture is that of irregular masses of epithelial cells closely packed in alveoli surrounded by heavy fibrous stroma. The growth is confined chiefly to the mucous and submucous layers. The protoplasm of the cells is pale and scanty, but the nuclei stain darkly and are generally oval or round and with fewer irregularities than are presented by carcinomatous cells in other portions of the alimentary canal. In this series of sixty-four tumors one was diagnosed as a colloid carcinoma and the remainder were of the spheroidal type.

That chronic inflammation is a factor in the production of carcinoma is evident from a study of the specimens. An analogy is the development of gastric cancer on an ulcer basis.

The author concludes that a pre-operative diagnosis of carcinoma of the appendix is impossible because of the absence of distinguishing clinical signs. The prognosis following early removal of carcinoma

of the appendix is more favorable than that of malignancy in any other part of the gastro-intestinal tract. There is a definite relationship between chronic inflammation and carcinoma of the appendix. The appendix should be examined carefully whenever the abdomen is opened and should be removed if at all suspicious. The relationship of cæcal carcinoma to carcinoma of the appendix has not been proved.

LIVER, GALL-BLADDER, PANCREAS, AND SPLEEN

Deakin, V. R., and Graham, E. A.: Functional Liver Tests: An Experimental Study. *Surg., Gynec. & Obst.*, 1923, xxxvi, 348.

The recent prominence given non-surgical drainage of the biliary tract in medical literature has served to emphasize the ease with which duodenal intubation may be accomplished, and this in turn has stimulated a revival of interest in a test of hepatic function.

The most evident function of the liver is its excretion of bile, but this is not its sole function. In a series of twenty-five cases the authors drained the biliary tract by Lyon's technique and then attempted to make a functional test by injecting 50 mgm. of phenoltetrachlorphthalein intravenously after the flow of the "C" fraction of bile had been established and collecting all the bile possible during the succeeding two hours.

The output of phenoltetrachlorphthalein varied greatly even in those cases in which the drainage was effected most easily. In one case no phenoltetrachlorphthalein could be demonstrated in the bile over a period of ten days.

Later, the authors attempted the Lyon-Meltzer biliary drainage on normal and on cholecystectomized dogs, and made a hepatic functional test on normal dogs and on dogs whose livers had been damaged, as by prolonged chloroform anaesthesia. Five dogs were anaesthetized with ether and a small stomach tube passed and guided manually into the duodenum through a laparotomy wound. The duodenum was then irrigated with a 25 per cent magnesium sulphate solution. In all of the dogs the gall-bladder always contained a considerable quantity of bile. In two of them the cystic duct was clamped off and the bile from the other biliary passages compared with that of the gall-bladder. In every case the bile from the gall-bladder was of a darker color and more viscid than that of the hepatic ducts.

In four dogs the phenoltetrachlorphthalein injected intravenously was subsequently recovered in the duodenum in from ten to fifteen minutes. When the cystic duct was left patent, the dye could be demonstrated in the gall-bladder bile. When the cystic duct was clamped off prior to the injection, the dye could not be found afterward in the gall-bladder bile. These results are similar to those obtained by other investigators.

At no time, however, did the sphincter remain relaxed for a two-hour period. Therefore, in dogs, a hepatic functional test by a method similar to that used in clinical cases is impossible.

The authors summarize their conclusions as follows:

1. Phenoltetrachlorphthalein is not satisfactory for a hepatic functional test based on the quantitative estimation of its output in the bile.

2. There are too many factors tending to prevent the complete collection of liver bile by the duodenal tube to warrant the use of the latter in such a procedure.

3. The so-called "B" fraction in non-surgical biliary drainage is in part at least derived by gravity from the gall-bladder.

4. Under ether and chlorotone anaesthesia the sphincter of Oddi will relax, but with this relaxation the gall-bladder does not contract sufficiently to empty itself.

5. The intermittent flow of bile from the common duct is probably the result of an increase in intra-abdominal pressure during respiratory movements, and in all probability, as Harer and others have concluded, the gall-bladder is emptied of its contents by the pressure of adjacent distended and congested organs during digestion and by the milking action of the duodenal peristaltic waves.

GEORGE E. BEILBY, M.D.

Hartmann-Keppel: Twenty-Two Cases of Amœbic Abscess of the Liver: Their Treatment with Emetine (Vingt-deux observations d'abcès amibiens du foie; leur traitement par l'émétine). *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 216.

Hartmann-Keppel treated twenty-two cases of amœbic abscess of the liver in Macedonia, Syria, and Palestine. Most of the subjects were soldiers. Fifteen were between 15 and 40 years of age. Two patients were women. Eleven had dysentery, six had had dysentery previously, and five had had no intestinal disturbances. A search for the parasite was made in only nine cases. The amœbæ were found in the stools in every case but were discovered in the liver pus in only two. In four cases a liver abscess had been present previously but had been cured. In seventeen cases there was only a single abscess, but in four there were two, and in one, five. The site of the abscess was the right lobe in sixteen cases, and the left lobe in six. In three cases there were abscesses elsewhere besides the liver. The symptoms were classical.

One patient died a few hours after entering the hospital. Of the twenty-one others, two were treated by simple surgical incision without any medical treatment. Both recovered but suffered a recurrence. They were then cured with emetine. In twelve cases given medical treatment (emetine alone or emetine combined with arsenic or other drugs) there were ten recoveries; in eight the abscess was resorbed and in two it was spontaneously evacuated. In six cases the treatment consisted of sur-

gical opening of the abscess followed by medical treatment. These were all very severe cases and only two of the patients recovered without complications. Two died of the condition, one died later of pneumonia, and the other recovered after thoracotomy.

In one case medical treatment was found entirely inefficacious. The patient was then operated upon and recovered. Of the twenty-one patients treated, three died. The mortality was therefore 15 per cent, a figure much below that previous to the therapeutic use of emetine.

Therefore it is apparent that in a large number of cases medical treatment alone may bring about recovery. Many surgeons have been of the opinion that emetine should be used only as an adjunct to operation.

Hartmann-Keppel favors wide opening of the abscess instead of simple puncture.

For good results, the medical treatment must be energetic and prolonged. After giving small doses in the beginning, the author reached a dosage of 0.75 to 1.25 gr. in twenty to twenty-five days. Arsenicals were given with the emetine. Such high dosage causes some reaction but a serious nephritis developed in only one case.

In the series of twenty-two cases reviewed there were nine recurrences. Therefore the recoveries cannot be considered as definite as no patient has been followed more than two years. In reality recurrences are hepatic re-infections in persons apparently cured but still carriers of amœbæ. The persistence of the parasite in the intestine shows the necessity of maintaining the treatment and carefully examining the stools for some time.

W. A. BRENNAN.

Jones, H. W.: The Pigment Metabolism and the Van den Bergh Test to Differentiate Obstructive and Non-Obstructive Jaundice; with Five Case Reports. *Med. Clin. N. Am.*, 1923, vi, 1089.

Van den Bergh developed a chemical test to differentiate between obstructive and non-obstructive jaundice. Before operation it is often very difficult to distinguish between obstructive jaundice due to such factors as carcinoma, common-duct stones, pancreatitis, and hepatic cirrhosis, and non-obstructive jaundice of the acholuric, hæmolytic, and catarrhal types.

With Ehrlich's diazo reagent minute traces of bilirubin can be detected in the blood serum. The bilirubin present in the blood serum differs in the two types of jaundice. In the obstructive type it is free and uncombined, while in the hæmolytic type it is bound to the albuminous material and liberated when alcohol is added.

Jones has tested this method carefully in a series of five cases, three of obstructive jaundice and two of the non-obstructive type. The test was very easy to perform and proved accurate in every instance.

JOHN W. NUZUM, M.D.

Rudberg, H.: Traumatic Rupture of the Bile Passages (Ueber traumatische Rupturen in den Gallengaengen). *Upsala Lakaref. Foerh.*, 1922, xxvii, 223.

Rudberg discusses the disease picture of forty-one cases of traumatic rupture of the bile passages found in the literature. In sixteen cases the hepatic duct or one of its main branches was affected; in nineteen, the choledochus; and in two, the cystic duct. In four, the location of the rupture was not determined.

If the tear occurs in the anterior wall it is easily reached, but often it is retroperitoneal, in the posterior wall of the common duct behind the pancreas or the duodenum, and then is very difficult to approach.

The rupture is always caused by violence applied to the abdomen. It is most common in middle life. In fifteen cases it occurred between the ages of 1 and 20 years; in eighteen cases, between the ages of 20 and 40; and in three cases after the age of 40. The youngest subject was 20 months old and the oldest 60 years. If the bile is infected, as for example in calculi of the gall-bladder, peritonitis develops. If the bile is sterile, the picture is extremely characteristic. As the result of the matting together of neighboring intestinal loops, one or more pockets are formed which become filled with bile. In cases of rupture of the posterior walls of the ducts there are retroperitoneal collections of bile. The pockets are always coated with fibrin. They may contain large quantities of bile, even as much as 26 liters. Jaundice is absent or slight as the encapsulated bile is absorbed very slowly. The common duct, however, is compressed by this collection of fluid and no bile reaches the intestine. Therefore the fæces are of light color.

As a result of operation which releases the bile through drainage, the color of the fæces is restored because, in the absence of pressure, the common duct remains patent. This chronic peritonitis is regularly accompanied by a severe cachexia due to intoxication induced by the absorption of bile, compression of the abdominal organs, and failure of biliary digestion. The pulse is rapid, 140 to 150 beats per minute. Without operation all cases come to a fatal termination after a few weeks. In operating, the essential object is drainage. The most that should be done in total rupture of the biliary duct is suturing of the posterior wall, the anterior half being left open to prevent the subsequent development of stenosis. The drain should never be carried into the biliary duct.

The following case came under the observation of the author:

The patient was a man 48 years old who was kicked in the abdomen by a horse. There was severe pain, but no vomiting. At operation the following day the abdomen was found slightly distended. Tenderness and dullness extended from the free border of the ribs to the umbilicus. Bile was discovered among the intestines. The hepato-

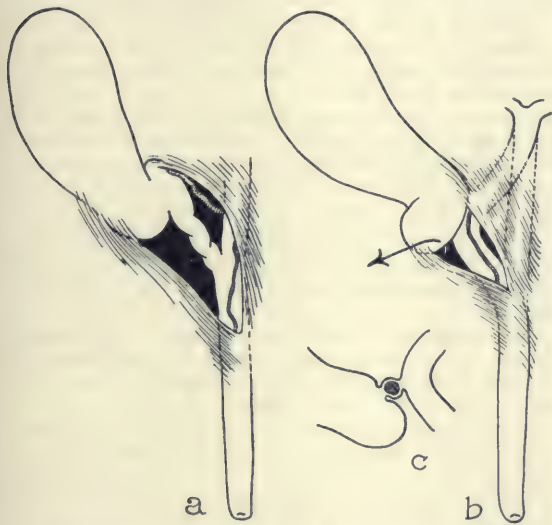
duodenal ligament showed a right-angled tear. Separation of the edges of the wound disclosed a rupture of the entire anterior wall of the common duct, 2 cm. below the mouth of the cystic duct. Two drains of the thickness of a lead pencil were inserted and the abdomen was then closed. The fæces were never light-colored. Following the removal of the drains on the sixth day the biliary fistula which remained closed slowly. Healing was complete in two months.

PORT (Z).

Homans, J.: Identification of the Common Bile Duct in the Presence of an Anomalous Condition of the Biliary Passages. *Surg., Gynec. & Obst.*, 1923, xxxvi, 417.

Injuries to the ducts during operations upon the bile passages are apt to occur when there is an unrecognized anomalous arrangement or pathological distortion of the normal relations of the structures.

The cystic duct may be very short or the common duct may assume the appearance of the



a, Appearance and relations of gall-bladder and cystic and common ducts when peritoneum over them has been widely split and retracted. *b*, Appearance and relation of common duct to gall-bladder when the former is angulated and drawn into position of normal cystic duct by traction upon ampulla. *c*, Fully dissected region of cystic duct itself. The duct is shown blocked by small stone.

cystic duct as the result of traction made upon the gall-bladder. In either case the common duct, if unrecognized, is in danger of being divided in the operation of cholecystectomy.

After the peritoneum and fat have been dissected from it the common duct can always be identified with certainty by the presence of a blood vessel which passes longitudinally along its anterior surface.

VERNE G. BURDEN, M.D.

Judd, E. S., and Lyons, J. H.: White Bile in the Common Duct. *Ann. Surg.*, 1923, lxxvii, 281.

The authors review the literature on white bile in the common duct and the collected cases to date, including nineteen cases from the Mayo Clinic.

The presence of a colorless liquid (without bile pigment) in obstructed common and hepatic ducts has been believed to indicate increased operative risk. In the Mayo Clinic series the operative mortality was 21 per cent, in spite of cautious pre-operative measures and postoperative care, including the use of calcium, transfusions, etc. It is believed, however, that while the mortality is high, it is probably no higher than it would be in a series of cases of complete biliary obstruction of the same duration with green bile in the common and hepatic ducts.

The nineteen cases of white bile in the common duct observed at the Mayo Clinic were found in the course of 649 operations on the common and hepatic ducts performed during a period of four years. In nine of these the obstruction was due to stone in the common or hepatic duct; in six, to trauma at a previous cholecystectomy; in two, to carcinoma (one of the pancreas and one of the ampulla); and in one, to pancreatitis. In one instance the white bile seemed to result from cholangitis. In no instance in which the gall-bladder was present was it normal. Seventeen of the nineteen patients were intensely jaundiced at the time of operation, and there had been no recent decrease in the jaundice. One patient had a biliary fistula. One was not jaundiced, although there was complete obstruction to the common duct by a stone; in this case cholecystectomy and choledochotomy with removal of the stone resulted in drainage of bile on the fourth day after operation. The patient made an uneventful, immediate convalescence, but died from acute hemorrhagic pancreatitis on the thirty-second day after operation.

Rous and McMaster have shown experimentally that white bile occurs only when the obstructed ducts are not connected with a normally functioning gall-bladder, and conclude that this fluid is a secretion of the mucosa of the biliary passages which collects when obstruction is present. The findings in the patients observed at the Clinic bear out these conclusions. The liver does not necessarily cease to secrete bile in these cases, but it is probable that in certain cases hepatic function may be suspended for a time and entirely reestablished later.

Seelig, M. G.: Bile-Duct Anomaly as a Factor in the Pathogenesis of Cholecystitis. *Surg., Gynec. & Obst.*, 1923, xxxvi, 331.

Seelig calls attention to the fact that anatomical anomalies of the bile duct may be an important factor in the pathogenesis of cholecystitis. A case is cited in which the cystic duct emerged from the gall-bladder somewhat laterally, and then kinked on itself very sharply, coursed upward along the left lateral wall of the gall-bladder for $1\frac{1}{2}$ in., and

then turned to the left to empty into the common duct. This cystic duct was incorporated in the wall of the gall-bladder in much the same way as the appendix may be incorporated in the wall of the cæcum. The posterior wall of the gall-bladder was adherent to the common duct, so that when traction was exerted on the gall-bladder the common duct pulled up in the same way as the normal cystic duct. Division of the cystic duct at its point of entrance into the common duct and mobilization of the gall-bladder brought into view the common duct coursing behind the gall-bladder and emerging from below its pelvis in the position normally occupied by the cystic duct.

Such an anomaly is important not only because of the technical difficulties it creates for the surgeon but also because of its relationship to the pathologic lesions of the biliary tract. The sharp kinking of the cystic duct produces stasis of the gall-bladder contents which leads, first, to prodromal colic and later, to non-inflammatory bile inspissation which is followed in turn by concrement formation with attendant inflammation.

WILLIAM E. SHACKLETON, M.D.

Clark, J. G.: A Comparative Study of Two Series of Gall-Bladder Lesions. *Surg., Gynec. & Obst.*, 1923, xxxvi, 323.

The author has made a comparative study of cholecystectomy and cholecystostomy from the standpoint of immediate convalescence, improved health, and restoration of working power. He chose for this study two series of 159 cases each. In the first series the ratio of cholecystostomy to cholecystectomy was approximately 2:1, while in the later series of cases this ratio was practically reversed.

Clark believes that with the improvement in technique, cholecystectomy is no more hazardous than cholecystostomy.

The outstanding facts in Clark's series of cases were the decrease in postoperative complications and the improved convalescence in the patients subjected to cholecystectomy. The wounds healed more readily, adhesions occurred less frequently, and the length of time in the hospital was decreased on an average by three days. The incidence of wound infection dropped from 8.2 to 4.4 per cent, and of phlebitis from 2.5 to 2.2 per cent. The relative difference between qualified improvement and lack of improvement was distinctly in favor of cholecystectomy.

On the basis of these findings the author believes that the total removal of the gall-bladder may be extended to a larger percentage of cases.

WILLIAM E. SHACKLETON, M.D.

Pool, E. H.: Injuries to the Spleen. *Boston M. & S. J.*, 1923, clxxxviii, 262.

Subcutaneous injuries of the spleen are much more common than open wounds, and are usually seen in men at the active period of life. A diseased spleen is enlarged and friable and may rupture spontane-

ously or as the result of injury. Any part of the spleen may be involved. In direct injury the kidney also may suffer. If the injury is intracapsular and the bleeding is slight, the blood may be absorbed. If the capsule is involved as well, more severe hæmorrhage occurs, the amount depending on the extent of the injury. Delayed hæmorrhage in cases of splenic injury may be a large subcapsular hæmorrhage which has burst through.

The symptoms of rupture of the spleen depend upon the extent of the injury. The mildest type may escape detection while a severe injury may be followed promptly by death. Pain, tenderness, muscular rigidity, and an increase in the size of the spleen are prominent signs of contusion. Rupture of the spleen gives rise to shock and evidence of intra-abdominal hæmorrhage. The accumulation of blood within the abdomen can often be made out by percussion. Percussion of the right flank with the patient on the left side gives rise to a tympanitic note, while percussion of the left flank with the patient on the right side gives a dull note due to an accumulation of clots (Chavannaz). Hæmorrhage gives rise to an early and marked leucocytosis. Delayed hæmorrhage from the spleen is not uncommon, and must be watched for carefully in all severe injuries to the left side of the abdomen.

Splenectomy is the operation of choice, but the presence of adhesions and the patient's condition may render it inadvisable. It may be necessary to pack the splenic wound or ligate the splenic vessels and delay splenectomy until a more favorable time.

Since the diagnosis of splenic injury is often difficult, the incision made should be suitable for complete exploration and the care of any associated injuries.

Spontaneous rupture may occur in a diseased spleen. This is found most commonly in the malarial spleen. In the typhoid spleen it is more apt to occur during the second week (Melchior).

The rupture may be severe or slight. The symptoms of spontaneous rupture usually include pain in the left hypochondrium, syncope, and shallow respiration. The treatment is splenectomy. Suture of the spleen is not satisfactory as a rule, as the sutures pull out because of the friable condition of the organ. Transfusion of blood or an infusion of salt solution should be given at the time of the operation.

In civil life open wounds of the spleen are uncommon. Usually they are due to a bullet or stab wound and there is simultaneous injury to adjacent structures. During the war, wounds of the spleen due to projectiles were also relatively infrequent. Their mortality was high because of the unavoidable delay in providing operative care. The diagnosis in this type of case is difficult. If the injury is caused by a bullet, the wound of entrance and of exit must be taken into consideration. The treatment is similar to that of the subcutaneous type. An incision allowing wide exploration is advisable. If the thoracic cavity is involved, it is a good plan to repair and close this wound first, and reach the spleen

through an abdominal incision. Splenectomy is the procedure of choice also in this type of case.

WILLIAM J. PICKETT, M.D.

MISCELLANEOUS

Peters, J. J.: Pneumoperitoneum as an Aid in Diagnosis. *J. Nat. M. Ass.*, 1923, xv, 33.

Because of its wide range of possibilities, pneumoperitoneum has been heralded with the usual over-enthusiasm that greets every new method of examination. It is not considered the method of choice and for all intra-abdominal conditions its indiscriminate use should be discouraged. In certain classes of obscure intra-abdominal conditions, however, the desired information can be obtained in no other manner.

Pneumoperitoneum has been found of great aid in the diagnosis of diseases of the liver, gall-bladder, and kidneys, and of postoperative adhesions and retroperitoneal tumors. By other methods retroperitoneal masses are differentiated from intra-abdominal masses only with the greatest difficulty and with no degree of certainty.

The technique described by Peters was developed by Sante, and in one hospital has been employed in over 250 cases.

Early in this work the apparatus was complicated and cumbersome. The apparatus now used consists of the pump of a Potain aspirator, a short rubber connecting tube, and two sterile lumbar puncture needles. No attempt is made to sterilize the pump. Air is used exclusively for the inflation.

Care must be taken to keep the patient's head lowered at all times; otherwise the pressure of the gas against the diaphragm will cause pain in the shoulders and embarrass the heart and lungs.

Pneumoperitoneum is contra-indicated by acute inflammatory processes in the abdominal cavity, acute respiratory infection, cardiovascular renal disease with cardiac decompensation, and acute febrile conditions.

CARL R. STEINKE, M.D.

Eastman, J. R.: Prevention of Peritoneal Contamination in the Drainage of Abdominal Abscesses. *J. Am. M. Ass.*, 1923, lxxx, 833.

In one method of draining abdominal abscesses the abscess is approached by an entirely extraperitoneal route, the incision being made lateral to the classical appendix incision and extending only to the peritoneum. The parietal peritoneum is then peeled away from the musculature of the flank, and the abscess opened bluntly at the bottom of the extraperitoneal canal thus formed. The mortality from opening an abscess extraperitoneally should be practically nil.

In cases of retrocæcal abscess with a firm wall which has not yet ulcerated the author packs the space about the cæcum with loose strands of gauze and a rubber tube. This procedure is followed after eight to twelve hours by spontaneous rupture and evacuation of the pus. The gauze is then removed gradually, and the tube comes out after ten days. Patients treated in this way remain free from recurrence of symptoms after many years.

In cases of large and deep appendical abscesses in which ordinary transabdominal drainage is unsafe, a large cigarette drain with a protruding tuft of gauze is placed on the abscess. The wound is then closed around the distal end of the tube. Invariably rupture takes place within forty-eight hours, at which time a canal has been established about the tube which is sealed off by peritoneal adhesions.

H. W. FINK, M.D.

SURGERY OF BONES, JOINTS, MUSCLES, TENDONS

CONDITIONS OF THE BONES, JOINTS, MUSCLES, TENDONS, ETC.

Martin, B.: Bone Regeneration from the Periosteum. Development of the Interosseous Ligament in the Forearm and Leg (Zur Knochenregeneration aus dem Periost. Zur Entwicklung des Ligamentum interossum am Unterarm und Unterschenkel). *Arch. f. klin. Chir.*, 1922, cxx, 744.

In an earlier publication Martin reported observations demonstrating that in full-grown dogs the two parallel bones in the lower half of each extremity exert a peculiar influence on one another. A pseudarthrosis in the radius was responsible for a pseudarthrosis in the ulna at the same level, even though the limb was continually immobilized by a plaster-of-Paris dressing.

A similar influence of the one bone upon the other has been observed in experimental osteitis and osteomyelitis. The author believes that, in man, the tense interosseous ligament, which is analogous to the connection between the ulna and radius in the dog, constitutes a medium through which irritation is carried from one bone to the other. According to Bardeen's theory, the interosseous ligament originates from the common protoplasmic anlage of both bones and constitutes a connection between their periosteal coats. This theory is confirmed by the author's studies on human embryos.

That the connective tissue of the periosteum is of the greatest importance in periosteal new bone formation was proved by Tsunodas's experiments, which demonstrated that transplanted cambium cells without periosteal connective tissue are unable to cause periosteal new bone formation.

In man, the interosseous ligament between the ulna and radius is formed later than the corresponding ligament in the leg, and shows distinctly the histologic structure of pure fascia. This explains why it conducts only pathologic stimulations while the ligament of the leg, which is laid down in an earlier period of development, conducts physiological stimulations also, as shown by the remarkable regenerative capacity of the fibula. VOLLHARDT (Z).

Fromme, A.: Late Rachitis, the Late Rachitic Origin of All Deformities of Growth and War Osteomalacia (Die Spätrachitis, die spätrachitische Genese saemtlicher Wachstums-Deformitaeten und die Kriegsosteomalacie). *Ergebn. d. Chir. u. Orthop.*, 1922, xv, 1.

The differentiation of late rachitis from the infantile type is difficult. The proposal of Schmorl to select the end of the fourth year as the borderline has been the suggestion most generally approved. Infantile rachitis may undergo transition into late rachitis, and this, without any free interval, may

pass into osteomalacia. These three diseases should be grouped together. Osteogenesis imperfecta tarda, idiopathic osteopsathyrosis, and chondrodystrophia fetalis must be differentiated from them.

Late rachitis, even though previously described by Ollier and Trousseau, was recognized universally only after the exact pathologic descriptions of it by Schmorl, Looser, and von Recklinghausen. In the author's opinion, many of the cases of endemic bone disease in the World War were of this nature, and even if these are left out of consideration, the condition is more common than is generally believed.

In the chapter on the pathologic anatomy, the conditions of calcification, the changes in the zones of growth, and metaplasia in the bone are discussed with the aid of numerous illustrations and an analysis of the works of Schmorl, Looser, and von Recklinghausen. In the parts of the skeleton formed during the presence of the disease there is a deficiency of calcium. This is true also of the growth cartilage and the joint cartilage. The newly formed bone is reticular and shows changes in the marrow.

The disturbance in the chondral ossification is characterized by the absence of the preparatory zone of calcification, widening of the zone of cartilaginous proliferation, and the appearance of numerous blood vessels. In addition, there is a more or less broad zone of osteoid tissue toward the diaphysis, without distinct demarcation between the layers, this accounting for the indistinct, indented, ravelled-out appearance of the ends of the diaphyses in the severe cases. The course of the rachitis, in which there are usually remissions and recurrences, leads to the formation of several zones of calcification (calcification bands). If these calcium bands are not completely decomposed, they move forward toward the diaphyses with growth (yearly rings). Of special importance are the islands of cartilage formed in the process of healing. The broadening of the ends of the joint in rachitis is probably due to mechanical factors. Schmorl attributes an active part to the osteoid tissue. The same changes that are found in the epiphyseal cartilage appear also in the joint cartilage.

The clinical symptoms of late rachitis are the same as those of the infantile form, with the exception that in older children and adolescents subjective symptoms are mentioned and there may be retardation of sexual development. The chief symptoms are pain, especially in the zones of growth, muscle weakness, oedema over the tibiae, swellings in the knee and foot joints, ulcers of the leg, deformities of various grades, retardation in the longitudinal growth, and nervous excitability. Simon noted that during epidemics of the World War the clinical and roentgen picture in the cases of young men resembled that of late rachitis.

tis, whereas in young girls more osteomalacic symptoms were noted.

In the interpretation of the roentgenograms the changes in the ultimate bone and those in the zones of growth must be differentiated. The diagnosis cannot always be made from the roentgenogram because the hypoplastic cases show few, if any, changes in the zones of growth, and in the early cases a roentgenologically demonstrable change is entirely absent. However, in all severe and moderately severe cases, a diagnosis is possible if the roentgenogram is considered with the clinical symptoms.

Among the most important signs of rachitis are the deformities of the bony system. The majority of the deformities of growth are caused by changes in the zones of chondral ossification. The flexibility of the diaphyses is dependent upon whether much or little osteoid tissue is formed. Besides the simple curvature, deformities develop at the sites of fractures and fissures. In addition, there are areas of disintegration. Through these, which occur also in osteomalacia, osteopsathyrosis, and hereditary syphilis, the author endeavors to explain an entire series of disease pictures of unknown origin (chronic oedema of the foot, other anomalies of ossification, and true joint bodies). The most important and most frequent are the deformities which arise at the sites of chondral ossification, in which longitudinal growth occurs. Here it is the deficiency of calcium which causes hypersensitiveness to trauma. Another possibility is loosening of the epiphysis.

Individual deformities, such as genu valgum and varum, coxa vara and valga, Madelung's deformity of the hand, hallux valgus, and cartilaginous exostoses are then discussed. Passing next to disturbances in the chondral growth of the epiphyses, the author summarizes his views regarding Perthes' disease by stating that very many clinical, roentgenological, and microscopic findings indicate that the rachitic disease plays an important part in its origin, but that further investigation is necessary to answer this question completely. Curvature of the spine, pes planus, and pes valgus are cited as examples of deformity of the zones of growth. Exostoses and spur formations on the os calcis and olecranon belong to deformities at the sites of periosteal ossification. Rachitis is the primary disease of osteochondritis dissecans leading to the formation of joint bodies.

The most important elements in the treatment of rachitis are the regulation of the patient's living conditions and the administration of phosphorus, cod liver oil, and calcium. This treatment is indicated also for recently developed deformities. Recently developed deformities can be easily corrected and immobilized in the corrected position (corrective appliances applied to deformities of the legs during the night according to the method of Boehm). In suitable cases of genu valgum and coxa vara, epiphyseolysis comes up for consideration. Later, corrective dressings and apparatus and osteotomy are in order; the latter is indicated also in acute cases if correction at one time or gradually does not seem

possible after general treatment for at least two weeks and the administration of phosphorus and cod liver oil. General treatment and the exclusion of factors which might lead to fracture must be instituted also when the X-ray demonstrates the presence of areas in the bone indicating disintegration.

The prognosis of late rachitis is good, but with respect to the permanency of the cure it must be guarded (chronic deforming processes in the joints).

In the final chapter the author deals with the condition called "osteomalacia," a term still used in spite of the recognized similarity of the disease to late rachitis. The numerous cases of this affection in the hospitals and nursing institutions during and after the World War is explained by the fact that it usually affects persons in a poor condition and of advanced age in whom it is favored also by lack of exercise in the open air. Its frequent occurrence during pregnancy is explained by the extraordinary demands on the organism at this time. It is generally believed today that in osteomalacia there is a pluriglandular endocrine disease associated sometimes with hyperfunction and sometimes with hypofunction of one or more glands. The difference in pathologic anatomy between late rachitis and osteomalacia depends, in the first place, upon the fact that the disturbances of endochondral ossification are absent wherever the hyaline cartilage disappears (it remains in the ribs and joints). According to the investigations of Pommer and Looser, the origin of the calcium-free margins is not always a decalcifying process, as osteoid margins may develop from the deposition of newly formed bone even in bone which is fully grown. In the explanation of the localization in the skeleton the biological conditions in the bones are of importance as well as the mechanical. The investigations of Partsch and Schmorl and those of Alwens have shown that the bone diseases in adults observed within the last few years are true osteomalacia. The clinical symptoms show certain differences from those of late rachitis (higher incidence of the condition in women, predilection of the disease for the vertebræ and ribs, in which there may be a true rachitic rosary). Rational feeding and the administration of phosphorus and cod liver oil constitute the essentials of the treatment.

With the rachitic-malacic diseases—among which he distinguished two subgroups, the porotic and the hyperplastic malacia—von Recklinghausen included fibrous osteitis (metaplastic malacia), the deforming osteitis of Paget (hyperostotic metaplastic malacia), and osteogenesis imperfecta (myeloplastic and hypostatic malacia).

STETTINER (Z).

Guenther, B.: Tumors of the Parathyroid Gland in Cases of Multiple Giant-Cell Sarcomata of the Osseous System (Ueber Epithelkoerperchentumoren bei den multiplen Riesenzellensarkomen des Knochiensystems). *Frankfurt. Ztschr. f. Pathol.*, 1922, xxviii, 295.

Following a review of the cases of parathyroid-gland tumors associated with osteomalacia* and re-

lated diseases which have been observed up to the present time, the author reports the case of a 46-year-old man with osteomalacia, multiple, so-called myeloid and myelosarcomatous tumors throughout the entire osseous system, and a tumor of the right parathyroid measuring 3.7 by 2 by 2.7 cm. A discussion of the nature of parathyroid-gland tumors and the brown, so-called giant-cell sarcoma, and the relation of these two types of tumor to tumors of the parathyroid gland, is summarized as follows:

1. In almost every case in which changes in the parathyroid gland were found in association with multiple brown tumors of the osseous system, there was a tumor-like enlargement of the gland.

2. The principal substance of the proliferating cells of the parathyroid gland consists of cells which are stained deeply with hæmatoxylin-eosin. There seems to be some relationship between the function of these cells and rickets and osteomalacia.

3. The extent of the hyperplasia of the parathyroid gland in cases of multiple giant-cell sarcoma leads to the assumption that in this condition the osseous system is greatly affected, either indirectly by a toxic substance, as Erdheim suggests, or directly, through abnormal function of the parathyroid gland.

These facts considered in connection with the findings of other pathological and anatomical investigations and the clinical course of the tumors indicate also that in multiple giant-cell sarcoma we are dealing with a chronic inflammatory, or rather, a regenerative or degenerative, proliferation, instead of a true blastoma.

MEYER (Z).

Osgood, R. B.: Myeloma of the Vertebræ. *Boston M. & S. J.*, 1923, clxxviii, 380.

The author believes that many cases of myeloma of the vertebræ have been unrecognized. An early diagnosis is of importance. Attention is called to the often unrecognized fact that the symptoms are intermittent. Osgood describes a case which covered a period of six years and in which there was a remission of symptoms for nearly two years. He states that the best review of this subject is that in Ewing's book on neoplastic diseases. The bibliography in this book is highly commended.

Osgood recommends Christian's work on the histology of myeloma and Wells' discussion of the relation of multiple vascular tumors of bone to myeloma. Ewing's definition of myeloma is quoted as follows: "A specific malignant tumor of the bone marrow arising probably from a simple cell type and characterized chiefly by multiple foci of origin, a uniform and specific structure composed of plasma cells or their derivatives, rare metastases, albumosuria, and a fatal termination."

Osgood states that we have no knowledge of the etiology of this condition although infection as a cause is sometimes suggested by the clinical picture and the general significance of the plasma cells. The disease at times resembles a nutritional disorder,

falling into a group with osteomalacia, and perhaps osteitis fibrosa, osteitis deformans, and rickets.

The chief interest of three cases reported by the author lies in the fact that spinal symptoms predominated. These cases were similar in character to the two reported by Turner. In both of Turner's cases the dominating symptom was pain of a boring character. In one, there were symptoms of cord pressure and mental symptoms. The blood findings, as in Osgood's cases, were negative, and the urine contained no Bence-Jones protein. In the five cases the roentgenograms of the spine were inconclusive, showing marked atrophy and some change in the shape of the bodies and the intervertebral discs. The pathologic tissue was characteristic.

Multiple myelomata may closely simulate tuberculous caries of the spine. Neither the history of the case nor the findings of the physical examination in the early stages are characteristic of the process. The absence of Bence-Jones protein from the urine does not exclude the condition. In doubtful cases roentgenograms of the skull, the pelvis, and the long bones may suggest the nature of the disease, even when those of the vertebræ are inconclusive.

Thus far, no treatment has surely influenced the course of this fatal multiple tumor growth. Radium and high-voltage roentgen rays are therefore worthy of a trial. The symptoms arising from myeloma of the spine are lessened and may be temporarily held in abeyance by recumbency and immobilization. If the disease is not too extensive, spontaneous fractures may unite if the bones are completely fixed.

Osgood urges that until some other nomenclature is generally accepted, the term "multiple myeloma" be restricted to the type of growth found in the cases here reported.

PHILIP LEWIN, M.D.

Meyer, A. W.: The Theory of Muscle Atrophy on the Basis of Experimental Investigations (Theorie der Muskelatrophie nach experimentellen Untersuchungen). *Mitt. a. d. Grenzgeb. d. Med. u. Chir.*, 1922, xxxv, 651.

As local muscle atrophy generally occurs after injuries and diseases in the bones and joints, Meyer comes to the conclusion that the "tension theory" can easily be made to include all the theories advanced up to the present time (the theory of inactivity, the theory of inflammation, the reflex theory, and the stretching theory).

According to the "tension theory," the muscle tone is a condition of excitation which constantly causes decomposition of muscle substance but leads to atrophy only in the absence of movement causing hyperæmia, as in artificial inactivation. Suitable stretching of the muscle is a counter-balance against the decomposing tonus.

LOEFFLER (Z).

Schubert, A.: The Origin of Ischæmic Contracture (Die Entstehung der ischæmischen Contractur). *Deutsche Ztschr. f. Chir.*, 1922, clxxv, 381.

The injury of muscles resulting in ischæmic contracture reaches its height in six to eight hours, causes

a permanent condition, rarely regresses spontaneously, but does not lead to necrosis of the extremity. A vascular interruption alone produces either gangrene or no permanent change, but it never results in a true ischæmic contracture. Ischæmic contracture is due to the simultaneous injury of an artery and nerve. The nervous regulation of the capillary circulation is arrested. A neuritis induced by trauma may also lead to considerable disturbance of the collateral circulation. An important factor still further favoring the development of ischæmia in cases of simultaneous injury of an artery and nerve is an immobilizing bandage. Particularly in the elbow, where the arteries and important vascular nerves are close together in narrow fascial spaces, a bandage may increase the injury to the nerves caused by the pressure of an effusion of blood.

Therefore the use of a circular plaster-of-Paris bandage on the arm should be avoided. The condition of the artery and nerve should be investigated most carefully even before the application of a splint. If obstruction of the circulation threatens, the injured site should be exposed surgically. The ruptured artery can then be ligated. The nerve should be freed from its bed which has been narrowed by the hæmorrhagic exudate, and the reduction of the fragments then effected. If the patient with ischæmic contracture comes for treatment when the muscle is completely degenerated and replaced by cicatricial tissue, the treatment can consist only in correction of the contracture which is most prominent.

HOHMEIER (Z).

Wolf, H. F.: Acute Subacromial and Subdeltoid Bursitis: The Clinical Picture, Etiology, and Treatment. *Am. J. Surg.*, 1923, xxxvii, 59.

This article is based on observations made in more than 200 cases.

The only difference in the clinical picture and etiology of the subacromial and subdeltoid types of bursitis is the localization of the tenderness.

There are two forms, the fulminating, in which the disease begins suddenly or with very slight warnings and reaches its height within a few hours, and a form in which symptoms are observed for weeks. The latter never becomes so severe as the former. The pain is excruciating, every motion causing agony, and the arm is generally pressed against the body.

In the fulminating form, swelling of the shoulder has been observed.

The difference in the clinical picture may be explained by variations in the virulence of the infecting organisms.

The region of the bursa is exceedingly tender, the tenderness often extending into the surrounding tissues. There are no signs of inflammation in the skin but the temperature of the skin over the affected area may be slightly increased.

In about 90 per cent of the cases the shoulder alone is affected. In the other 10 per cent, manifestations of the underlying cause were seen in other parts,

particularly in the arm of the same side, the entire arm or parts of it being swollen. The joints themselves are not affected, only the subcutaneous tissue being involved, but the restriction of motion may be very marked. Bilateral bursitis is very rare, but in some cases complaint is made of "rheumatic" pains in other parts of the body.

A brachial neuritis may precede, accompany, or follow an attack of subacromial bursitis. Paræsthesia in the fingers, hyperæsthesia of the skin, and tenderness of the nerve roots will help in establishing the diagnosis of a complicating neuritis.

The clinical picture is due to an infection by streptococcus viridans. The focus is generally found in the teeth or tonsils.

When the attack follows an injury, the injury caused a diminished resistance to the streptococcus viridans. The effect of salicylates is suggestive.

In some cases lime deposits are found, but the treatment outlined cures the bursitis without changing the deposits. Occasionally deposits are found also on the unaffected side. The lime deposits may cause the irritation.

Subacromial bursitis is, strangely enough, often confused with brachial neuritis. While it is true that both may be present at the same time, an uncomplicated neuritis leaves the motion of the arm free, however severe the pain.

Tuberculosis of the joint is characterized by slow development and mildness of the pain. Tenosynovitis is never painful while the arm is kept at rest or when moved passively, but there may be very sharp pain when active motions are attempted.

The treatment consists in very gentle massage with the whole hand, the application of wet dressings, and the administration of aspirin. In very severe cases a light icebag or ice compress is indicated. Aspirin is not absolutely necessary, but when used, should be administered in large doses.

The massage should be given once or twice a day, with very light pressure, and continued for twenty to thirty minutes. No motions should be made until the pain subsides. There is no danger of the formation of adhesions.

This condition is due to a focal infection; therefore the focus should be removed if it can be found. As it is generally possible to cure the condition by the methods described, only teeth with distinct abscesses should be extracted. In some cases in which the extraction of such teeth was done, relief was obtained four to five hours later.

Not infrequently, cases of old subacromial bursitis come under observation with acute exacerbations. These are due to a focus which was not removed during the first attacks. The treatment is the same. The pain disappears just as readily, but the restriction of motion present before the new attacks persists.

All forms of applying heat, the use of the hot water bag, baking, and diathermy, are strictly contra-indicated as they aggravate the inflammatory process.

Of the hundreds of cases, only three were not cured, and in these a focus could not be found and the patient discontinued treatment after three to five visits. The cure was always established within ten days, and often in three to four days.

Cowan, J.: The Relation of Sciatica to the Sacro-Iliac Joint. *Brit. M. J.*, 1923, i, 372.

In a review of forty cases of sciatica, Cowan noted that sacro-iliac joint pain is frequently associated with pain along the sciatic nerve, and that in practically every case pressure on the sacro-iliac joint causes acute pain along the course of the nerve. He believes that the pain is neuralgic and usually caused by a peri-arthritis or an arthritis involving the sacro-iliac joint.

Attention is called to the fact that the sacro-iliac joint is innervated by branches from the lumbosacral plexus, which is also the origin of the sciatic nerve. This plexus lies immediately in front of the joint, being separated from it by only the pyriformis muscle. Therefore, by extension, a peri-arthritis would produce a neuritis of the sciatic nerve.

The author shows also that the pain of sciatica is produced by bending or walking or motions which cause strain on the sacro-iliac joints. Lasague's sign (flexion of the hip with the knee extended) is used as a test for sciatica. This movement not only stretches the sciatic nerve, but also puts a strain on the sacro-iliac joint. The relief of pain in sciatica is obtained by a posture which relieves strain on the joint.

On this assumption that the sacro-iliac joint is the seat of the trouble, the author directs his treatment to the joint, giving no treatment at all along the course of the nerve. He has obtained excellent results with the use of diathermy as an adjunct. This treatment he has found superior to any other, especially in chronic cases. BEN N. WADE, M.D.

Kehl: External Rotation of the Leg in Diseases of the Hip Joint (Ueber die Aussenrotation des Beines bei Erkrankungen des Huftgelenkes). *Beitr. z. klin. Chir.*, 1922, cxxvii, 438.

Outward rotation of the leg is the rule in fractures. It is not due entirely to the weight of the leg, as the freely hanging leg in a case of fracture of the femur is not always rotated outward. The decisive factor is the strength of the muscles and joint ligaments. The strongest joint ligament in the body is the iliofemoral ligament which, under marked tension between the antero-inferior iliac spine and the intertrochanteric lines, runs spirally around the upper part of the thigh. This ligament fixes the leg in extension and in this position offers considerable resistance to the external rotators. In relaxation, when both of its points of attachment are approximated, the external rotators gain the mastery and the leg falls in an outward direction.

Such relaxation may occur in pathologic conditions as in fracture of the neck of the femur. With the gluteus medius muscle, the muscles passing

from the pelvis to the thigh and leg elevate the large fragment and thereby produce shortening of the injured leg. External rotation then occurs as the result of the approximation of the points of attachment of the iliofemoral ligament and the action of the external rotators. Also in central luxation of the femur there is approximation of the points of attachment of this ligament with external rotation. In coxa vara there is displacement of the cap of the head downward and also backward. Whereas the first deformity results from weight-bearing in walking, the second deformity is caused by the action of the external rotators. In coxa vara the iliofemoral ligament is relaxed by the upward movement of the neck of the femur.

In tuberculous coxitis the attempt is made to prevent pressure of the tense ligament on the inflamed joint by bringing the leg into a position of external rotation, slight flexion, and abduction, the points of attachment of the ligament being thus approximated. If the consequent relaxation of the capsule does not suffice for the increased effusion, the points of attachment of the ligament are approximated still more by increased flexion with adduction and inward rotation. If there is a gradual union of the bony portions of the joint, the external rotators again gain the mastery and a position of flexion, adduction, and external rotation results.

SCHUBERT (Z).

Perthes, G., and Welsch, G.: The Development and End-Results of Osteochondritis Deformans of the Hip Joint (Calvé-Legg-Perthes), and the Relationship of This Disease to Arthritis Deformans (Ueber Entwicklung und Endausgaenge der Osteochondritis deformans des Huftgelenkes (Calvé-Legg-Perthes), sowie ueber das Verhaeltnis der Krankheit zur Arthritis deformans). *Beitr. z. klin. Chir.*, 1922, cxxvii, 477.

The authors report the findings made in subsequent examinations of fourteen cases which Perthes observed in Leipzig and Tuebingen from the very beginning of the disease and re-examined after four, six, ten, and thirteen years. Fifty-one very characteristic roentgenograms of the head of the femur are included in the article and are discussed with the histories of the cases.

The case of a little girl, which was followed for four consecutive years at the Tuebingen clinic, afforded the rare opportunity of controlling the very beginning of the process and demonstrated that the softening of bone which is characteristic of osteochondritis deformans juvenalis may begin in a clinically normal femoral head showing a normal structure in the roentgen picture. Just as long as the process of destruction in the bone progresses the clinical symptoms consist of extensive inhibition of abduction, diminished rotation with free flexion and extension of the thigh, the Trendelenburg gait, and absence of pain. On the other hand, improvement in the mobility is frequently observed at a time when the destructive processes in the head of the femur do not seem to have reached their climax.

According to Perthes, the total duration of the entire process from the appearance of the first symptoms to the occurrence of the final form of the head of the femur is about four and one-half years. The final results of this disease as shown in the roentgenogram may be divided into two typical forms, namely:

1. The spherical head (ideal healing), which the authors observed in five cases, those in which the process of destruction did not advance beyond the epiphyseal line. In four, the gait had become entirely normal but in one there was a slight limp. Abduction was possible to 60 degrees, and the Trendelenburg sign was absent. Four cases showed no shortening but in one case there was ultimately a shortening of 2.5 cm.

2. The cylindrical or fungus-shaped head. This was found by the authors in ten (two-thirds) of the cases. In one case the condition was bilateral. These cases showed a considerable decrease in the height of the head and a broadening which caused it to project laterally beyond the acetabulum. The joint line of the head remained very sharp, evidently because the cartilaginous covering of the head was at no time during the long course of the disease seriously affected. The neck of the femur was short and broad and in many instances had assumed a varus position to the head. The clear foci in the bone had entirely disappeared as the islands of cartilage had formed a large amount of new bone. The acetabulum had accommodated itself fairly well to the changed head, having assumed a more elliptical form. In five of the cases the gait had become normal again. Four of the patients limped slightly, and one limped markedly with a waddling gait. In seven cases the Trendelenburg sign had disappeared, in two it was slight, and in one it was somewhat more definite but by no means so pronounced as before. The formerly restricted abduction had returned to an average of 40 degrees except in one case, in which it remained restricted because of extensive hypertrophy of the trochanter. Flexion and extension were normal, and rotation was only slightly diminished. The measurable shortenings amounted to 1.5 to 2 cm.

Of the patients who were re-examined later than five years after the beginning of the disease, the majority were free from pain. In those cases in which slight pain was still present the healing process was probably not entirely complete. In every case, without exception, a constant improvement was noted after the third year. There was never any crepitation. All of the fourteen patients subsequently examined felt entirely well and worked without hindrance in the most varied occupations.

These observations, together with about 100 late findings from the literature (the article is supplemented by a complete bibliography), confirm the favorable prognosis of this disease, which Perthes has constantly maintained. They show also that an operation on the joint (Frunder) is not indicated,

and that treatment with a plaster-of-Paris cast or an extension apparatus is entirely unnecessary.

In regard to the relationship between osteochondritis juvenalis and arthritis deformans which has been claimed recently, the authors state that this relationship can be denied on the basis of the important differences between the two processes:

1. Osteochondritis juvenalis begins with a focal breaking down of the bone in the interior of the epiphysis of the head under an intact covering of cartilage, while arthritis deformans begins with changes in the joint cartilage followed by changes in the adjacent bony tissue.

2. Osteochondritis juvenalis is confined to a definite period of life previous to the completion of ossification of the head. Arthritis deformans has no such time limit, occurring most frequently after the completion of growth.

3. Osteochondritis juvenalis usually comes to an end after a definite period of time. Arthritis deformans constantly progresses.

4. With the complete cure of osteochondritis juvenalis, nearly all of the symptoms, which were slight throughout the course of the disease, disappear. In arthritis deformans the symptoms increase constantly.

The possibility that an arthritis deformans may become associated secondarily with osteochondritis must be admitted, but the cases observed up to the present time do not support this assumption.

The authors were unable to find in their material any indication that trauma is the chief factor in the etiology of osteochondritis deformans juvenalis. They reject also the rachitic origin and are inclined to accept the theory attributing the condition to a congenital anlage. The pathogenesis they describe as follows:

Small portions of growth cartilage remaining utilized in the bone foci of the growing head of the femur as the result of a disturbance of development are stimulated to independent growth by an exciting cause such as trauma and infection. At the same time they partially destroy the already pre-formed bone, and ultimately become ossified themselves. Weight-bearing and the abnormal new formation of bone then cause deformity of the soft femoral head. When the proliferated cartilage is completely ossified, the disease process ceases.

MARWEDEL (Z).

Budde, M.: Precocious Ossification of the Epiphyseal Lines and Its Relation to Chondrodystrophia Fetalis (Ueber vorzeitige Wachstumsfugenverknöcherung und ihre Beziehung zur Chondrodystrophia foetalis). *Frankfurt. Ztschr. f. Path.*, 1922, xxviii, 461.

The author reports two cases of precocious joining of the epiphysis and diaphysis in long bones. The first was that of a 12-year-old girl who for six months had pain in the left knee joint and walked with a limp. The left femur was 6 cm. shorter than the right. Complete extension of the knee was impossible.

The roentgen picture showed the site of the disturbance to be in the lower end of the femur. The diaphyseal segment showed considerable widening and embraced the epiphysis in the form of an inverted V. The epiphyseal line was clearly recognizable only in the lateral condyle. In the middle, corresponding to the apex of the inverted V, it had entirely disappeared. The lateral view showed a considerable backward deflection of the epiphysis. This was therefore a case of precocious ossification of the epiphyseal line beginning in the popliteal plane.

The second case was that of a 14-year-old girl with asymmetrical dwarfism. The arm and thigh were short. Bilateral genu varum was associated with cubitus varus on the right side. The roentgen picture showed the same changes in both thighs as in the first case, and similar changes in the lower end of the humerus.

In the author's opinion, both trauma and rickets can be ruled out in the etiology of this rare disease picture. He points out the great resemblance of the condition to chondrodystrophia fetalis, which also leads to precocious synostosis. He believes the assumption is justified that it is a late form of chondrodystrophia. He concludes that the non-traumatic or inflammatory precocious ossification of the epiphyseal lines may be looked upon as a clinical symptom of the abortive form of chondrodystrophia fetalis.

LEMKE (Z).

Chesky, V. E.: Primary Osteomyelitis of the Patella; Report of a Case and a Review of the Literature. *Surg., Gynec. & Obst.*, 1923, xxxvi, 398.

Primary osteomyelitis of the patella is a very rare condition. In the cases reported in the literature it was never found before the fifth year of age and its greatest incidence was between the ages of 5 and 15, the period of ossification of the patella.

The onset is very much like that of osteomyelitis in any other part of the body. The abscesses practically always point anteriorly, the knee joint being involved therefore only in late neglected cases.

The prognosis as regards function is good with early operation. In children, the patella is frequently reproduced if the periosteum is preserved, even after complete removal.

DENNIS W. CRILE, M.D.

Mueller, W.: Callus Formations on the Metatarsals Without Fracture (Ueber Callusbildungen ohne Fraktur an den Metatarsalia). *Muenchen. med. Wchnschr.*, 1922, lxi, 1475.

In an experimental investigation the author made certain observations which may explain the etiology of the painful spindle-shaped callus of the metatarsus described by Deutschlaender. When an artificial defect was made in the radius of a dog, a clouding of the structure of the bone appeared at the corresponding site on the ulna, and eventually a sharply circumscribed, callus-like spindle-shaped mass of bone was deposited. The author considers this pro-

cess, described also by Martin, as a true callus formation without fracture, a reaction to constant trauma.

VOLLHARDT (Z).

Von Ditttrich, K.: The Cause of Hallux Valgus (Ueber die Entstehungsursache des Hallux valgus). *Arch. f. orthop. u. Unfall-Chir.*, 1922, xxi, 142.

In the author's opinion, the chief cause of hallux valgus is walking with the foot in abduction. The push in the direction of the head of the first metatarsal bone due to this manner of walking and increased by the counter-pressure of the ground must result in inward deviation of the first ray which is not bound to the lateral metatarsal fan by any muscular or ligamentous connection. At the same time the big toe is pulled outward by the action of the muscles and the shoe to the same extent as the metatarsophalangeal joint is directed inward.

The purely static etiology of hallux valgus is confirmed by the relation of the metatarsals to one another in the roentgenogram of the normal foot as compared with the foot with hallux valgus. The basic condition, the author believes, is hereditary or acquired asthenia of the entire ligamentous and fascial apparatus which leads to relaxation of the arch of the foot, loosening of the ankle joint, flatfoot, and, ultimately, genu valgum, which favors the development of hallux valgus as a result of the abduction gait.

SIEVERS (Z).

SURGERY OF THE BONES, JOINTS, MUSCLES, TENDONS, ETC.

López-Trigo, J. T.: The Treatment of Volkmann's Ischæmic Contracture (El tratamiento de la retracción isquémica de Volkmann). *Policlin.*, Valencia, 1922, ix, 142.

In cases of Volkmann's ischæmic contracture the López-Trigo diaphyseal resection is needlessly traumatizing. The method of choice is a tendon-lengthening procedure. The postoperative treatment should be directed toward the prevention of atrophy due to prolonged inactivity and the fixation of tendons by adhesions.

Passive mobilization should be begun the day after operation, and from the tenth day, when the sutures are removed, the skin over the anterior surface of the forearm should be massaged to increase the vitality of the muscles and impede the formation of adhesions fixing the skin to the underlying tissues. Diathermy and the use of galvanic currents are indicated. As soon as the patient is able, he should begin active movement.

W. A. BRENNAN.

Harmer, T. W.: Certain Phases of Surgery of the Hand. *Surg. Clin. N. Am.*, 1922, ii, 973.

In old infections and injuries of the hand much can be accomplished by careful dissection of the scar tissue, the use of fat-and-skin grafts, and careful supervision of active motion in the after-treatment. The foremost consideration in this field of surgery is

the prevention of anchoring adhesions and contracting scar tissue.

In the suturing of tendons or nerves in fresh injuries the author uses an overcasting stitch of silk or linen. Very early active motion is instituted, and stretching of the approximated parts is prevented by careful splinting.

In order to prevent interference with the circulation, pressure on nerves, and postoperative oozing, no tourniquet is used. Effort is made to minimize traumatism. A sharp knife is preferable to the scissors.

The treatment should be carefully planned before operation and the motion of each phalanx tested separately. It is useless to do tendon reconstruction on a finger in the presence of ankylosis of the proximal interphalangeal joint. A tiny arthroplasty is necessary. In the distal joints this may be reserved for a future operation.

If the deformity is limited to one finger and interferes with the use of the rest of the hand, amputation may be indicated.

Pedicle grafts from the abdomen, buttocks, and thighs are extensively used by the author to replace the shiny adherent skin over the injured tendons.

The palmaris longus is often used to fill gaps, and silk sutures have been found serviceable, especially in old avulsions of the extensor tendons at the terminal phalanx.

In old infections of the palm the introduction of fat is a valuable procedure. As a rule this graft is a pedicle graft of skin and fat. The structures, including the lumbricales, should be carefully dissected.

Where there is loss of tendon substance it is best to graft the skin first and delay the repair for a later operation. The author cites several cases to show the value of this procedure.

In cases of old injuries and infections about the wrist and forearm wide incision is necessary, often extending from the base of the palm up the forearm and dividing the annular ligament.

If nerve loss is great, it may be best to resect a portion of the lower ends of the radius and ulna to facilitate bridging.

Cases of diffuse tuberculous tenosynovitis and a case of diffuse angioma of the wrist were treated by complete excision.

ROBERT V. FUNSTEN, M.D.

Von Stubenrauch: Autoplastic Transplantation of Bone in the Soft Parts (Beitrag zur autoplastischen Knochenverpflanzung in die Weichteile). *Frankfurt. Ztschr. f. Path.*, 1922, xxviii, 477.

In 1909 the author removed the tuberculous first phalanx of the ring finger of a 12-year-old girl, together with part of the dorsal tendon, and transplanted into the defect the first phalanx of her third toe, with a piece of the dorsal joint capsule and a 5-cm. piece of the extensor tendon of the toe. Primary healing occurred.

After six weeks the metacarpal and interphalangeal joints were fairly freely movable with the use of a little force. In the roentgen picture the trans-

planted phalanx cast a dense shadow and its upper epiphyseal line was still distinctly visible. On the radial side of the transplant were several small ossification shadows.

After one and one-half years the finger was shortened and movable as before. The bone shadow was considerably lighter, the compacta of the transplant had become very thin, and the upper epiphyseal line could not be seen. On the radial side of the phalanx, the X-ray showed, in the area formerly occupied by the small ossification shadows, a small spur produced by apposition of bone.

After twelve years the shortening of the finger was more marked and there was no improvement in function. The transplant had remained healed in place without reaction, but its shape was somewhat altered. The roentgen ray showed that the compacta of the central portion had become considerable thicker, and the spur had entered the bone substance of the phalanx. An enlargement of the plate suggested that during these years there had been an alteration in the spongy structure, a regularly constructed narrow-meshed framework having been formed in the middle portion.

Contrary to the findings of other investigators, there was no continued survival of the epiphyseal cartilage; at the end of a year and a half it had disappeared entirely. Whereas heretofore it has been assumed that the transformation of a transplanted small bone is complete in about three months, this process in this case required a much longer period.

In another case, von Stubenrauch attempted to implant a portion of bone in the soft parts left after disarticulation of the hip in order to obtain a stump suitable for a prosthesis. The patient was a 54-year-old woman with an osteochondrosarcoma of the femur. Immediately after extirpation of the femur, the author grafted into the soft parts a 15-cm. piece of the tibia of the amputated limb from which he had curetted the marrow. He then sutured the muscles about this bone, and into the peripheral end of the empty marrow cavity inserted a glass tube for the drainage of secretion. Unfortunately, infection developed, making several incisions necessary. Because of this condition, the author sought to remove the transplant after fourteen days, but found it had become so united with the surrounding tissues that even the strongest pull with forceps at the projecting end would not loosen it. As the suppuration stopped, the transplant was finally removed after three and three-fourths months; this was performed with difficulty because, about the bony cylinder as well as in the acetabulum, the tibia had become adherent to the surrounding tissues through newly formed bone tissue so that an uneven covering of bone plates remained in the stump, which were clearly to be seen in the roentgen picture fourteen days after the operation. The removed graft was examined macroscopically and microscopically.

The erosions and processes of new formation in the transplant were all from the periosteum outward.

and varied in different areas according to the degree of the local infection. This case proved again that the healing in of a bone transplant may succeed in spite of infection.

In conclusion the author states that hereafter in performing the operation he will use pieces of compact long bone cut longitudinally. MARWEDEL (Z).

Albrecht, H. A.: The Choice of the Site for Amputation with Reference to Subsequent Prosthesis (Die Wahl der Amputationsstelle unter Berücksichtigung nachfolgender Prothesierung). *Verhandl. d. Russ. Chir. Pirogoff-Ges.*, Petrograd, 1922.

Without entering upon a discussion of recent advances in the technique of operations and the construction of prostheses, the author gives the practising surgeon a few suggestions which, on the basis of his six years' experience with many thousands of amputations, he considers of importance.

First of all, it is necessary to abandon the principle of amputating as far distally as possible. This principle holds only for the upper extremity where, of course, every centimeter of stump is of value. Elsewhere, amputation should be performed at such a level and in such a manner that some typical model of prosthesis can be easily applied which will answer the patient's requirements. Both with patients and apparatus it has been demonstrated that all foot amputations below the malleoli, in spite of excellent stability and a certain independence of prosthesis, can never give the effect secured by amputation below the knee.

Disarticulation at the large joints should be abandoned since the soft tissues covering the sides and the end of the stump do not have sufficient resistance to rubbing and pressure, and since the broad stump makes the attachment of artificial limbs more difficult or demands special contrivances. Persons subjected to disarticulation of the humerus, for example, do not become accustomed to the pressure of a prosthesis and suffer even from the pressure of heavy clothing.

In an osteoplastic procedure one should be certain of the result. In amputations of the leg at the site of election, active, free and vigorous movements of the stump should be maintained. Unless one can make certain of this, he should make use of the bent knee as a support for the prosthesis from the very outset or choose the Gritti amputation.

In amputation of the thigh in the proximal third one should secure a well-covered stump from 18 to 20 cm. in length, or make the incision high up under the lesser trochanter, and then proceed with regard to the prosthesis as after a disarticulation. In both cases a typical and secure prosthesis can be easily attached. Otherwise the primary adaptation of the artificial limb is imperfect and its functional value remains impaired, especially in the cases of persons engaged in physical labor.

For wide-scale application and for the majority of cases of war injuries kinetoplastic operations are useless.

In the case of the elbow joint a supracondylar amputation of the humerus is to be preferred to preservation of the articular portion of the joint.

VON DER OSTEN-SACKEN (Z).

FRACTURES AND DISLOCATIONS

Gubler, H.: The Prognosis of Dislocation of the Shoulder Joint (Zur Prognose der Schultergelenkluxationen). *Schweiz. med. Wchnschr.*, 1922, lii, 960, 985.

Following a review of the various methods of treatment, the author states that any form of protracted immobilization after the reduction of a dislocation is extremely harmful. He agrees with De Marbaix, who insists upon immediate active and passive motion after the reduction of a shoulder dislocation. De Marbaix prescribes passive movement immediately after the reduction, does not apply any bandage, even a sling, and allows the patient to practice active movements the following day. He has never had a recurrent or habitual dislocation, but, on the contrary, has obtained absolute cures in 97 per cent of his cases in an average of eighteen days.

Gubler's material includes all the cases of an insurance company, chiefly cases treated by general practitioners, in which there had been a more or less protracted immobilization of the arm. The most frequent dislocation was the subcoracoid dislocation (43.8 per cent). The right side was affected in 47.2 per cent. Among 252 cases, only twenty-five (10 per cent) had a permanent injury. In the uncomplicated cases the average period before a complete cure was obtained was thirty-eight days. It increases with increasing age, is longer in cases of injuries on the right side because the right arm is used more intensively than the left, and varies among different types of laborers.

Invalidism occurred in only 5.9 per cent of the cases of uncomplicated dislocations. Among these was a case in which reduction was done forty days after the injury, motion was begun the very first day after the reduction, and a cure resulted after thirty-three days.

The demand for compensation was prompted in the majority of cases by a traumatic arthritis. Frequently this condition does not improve, and now and then it becomes increasingly worse.

As a rule the period of healing was longer in cases of axillary dislocation (forty-three days), but even these healed perfectly. Of the complications, the most important is simultaneous injury of the bone, usually the greater tuberosity. Thirty per cent of the persons with complicated dislocations received permanent compensation. The avulsion of the greater tuberosity occurs more often in the axillary dislocation; the period of healing averaged eighty-two days. Injuries of the nerves are the most serious. In 50 per cent of the cases the injury was permanent; the duration of healing averaged one hundred and fifty-two days. If injuries of the nerves and bones

are present, the prognosis is unfavorable; permanent compensation was necessary in every case of this type.

DEUS (Z).

Fairbank, H. A. T.: Operative Treatment of Dislocated Hips, Congenital and Pathological.
Proc. Roy. Soc. Med., Lond., 1923, xvi, Sect. Orthop., 15.

Open operations are resorted to by the author to effect reduction, to prevent relapse in a hip already reduced, and to relieve pain in an old dislocation. Cases suitable for open reduction are those of children between 3 and 6 years of age in which the dislocation has resisted two manipulative attempts. Cases of unilateral dislocation in children over 6 years of age must be carefully selected. No cases of bilateral dislocation in children over 6 years should be operated upon. The author believes that manipulative reduction is usually the method of choice.

Operation must be preceded by manipulation and stretching of the muscles. On the operating table the patient is tilted slightly toward the normal side by means of a sand bag under the sacrum. An incision is made along the crest of the ilium to the antero-superior spine and downward between the tensor fasciæ femoris and the sartorius. The muscles are stripped from the ilium subperiosteally. The front of the joint is exposed and the psoas partially or completely divided near the lesser trochanter. The joint is opened on its anterior aspect low on the neck. The capsule bounding the lower margin of the isthmus is notched with a hernia knife and the isthmus dilated. Reduction is attempted by manipulation, aided if necessary by a spoon-shaped lever. If the patient can stand further procedure, an upper lip to the acetabulum is fashioned.

After the operation the leg is fixed in plaster of Paris either in the Lorenz or the "axillary position." The plaster does not always include the knee. After two weeks the plaster is cut off, the stitches are removed, and new plaster is applied.

The after-treatment consists in retaining the leg in at least right-angle abduction for six months and applying further casts with slightly diminished abduction for two to four months. Walking is permitted after the first six weeks unless extreme abduction is necessary.

In cases with much shortening, in which it is necessary to reduce the dislocation over the upper and back margin of the acetabulum, the author has discovered a heaping-up of the synovial membrane in front of the femoral head.

When the femur fails to remain reduced because of shallowness of the upper acetabular rim, a periosteal flap is turned down from the ilium over the upper margin of the acetabulum. The procedure is then the same as before, except that the capsule is not opened. A curved incision is made in the periosteum parallel to, and $\frac{1}{2}$ in. above, the upper margin of the acetabulum, curving down behind more than in

front. The periosteal flap so formed is then turned down with a flake of bone. The separation is carried just beyond the acetabular margin. The reflected head of the rectus is left attached and turned down with the flap. A crescentic bone graft including periosteum, the outer compact bone layer, and some cancellous tissue, is then cut from the dorsum ilii a little below the crest, laid on top of the osteoperiosteal bone flap, medulla to medulla, and fastened to the flap by means of a small bone peg cut from the ilium or with sutures. The wound is then closed and the leg put in plaster of Paris in abduction at a little more than 90 degrees.

Three of eleven openly reduced hips remained reduced. Two showed good X-ray and functional results two and one-half to four and one-half years after the reduction. The acetabulum-forming operation was performed on eleven hips. In three, the result was satisfactory. In four, there was anterior reposition, in one, absorptive arthritis, and in one, a relapse. The other cases could not be traced.

The author believes that simple excision of the head of the femur through an anterior incision is the best method for the relief of pain in untreated or imperfectly cured cases of dislocation.

Paralytic dislocations require especially careful selection as in many cases the severity of the paralysis contra-indicates operation.

JOHN MITCHELL, M.D.

Stephens, R.: Fracture of the Spine of the Tibia.
J. Am. M. Ass., 1923, lxxx, 905.

The fact that fracture of the tibial spine is rare prompts the author to report the two cases he has treated in the past six years.

The first case was that of a soldier 19 years of age whose knee was twisted when he was tackled during a football game. When examined by the author the knee was extremely swollen, painful, and ecchymotic, and there was almost complete absence of motion. No lateral movement was possible. The X-ray revealed a fracture of the upper end of the tibia with fracture and separation of the tibial spine. Further information regarding this case was unobtainable.

The second case was that of a boy of 16 years who was also thrown by a tackle in a football game. A sudden sharp pain and a snap occurred in the left leg. Given treatment for sprained knee, he was unable to use the leg for four months. After non-use for a while the knee became stiff. Examination made by the author was negative except for a slight limp. Extension was limited about 10 degrees. The X-ray showed a fracture of the external tubercle of the tibial spine with detachment of two small fragments.

At operation, in which a U-flap with its base upward was formed and a patella-splitting incision was made, a fracture of the tibial spine and small bony fragments embedded in the fibrous tissue were found. Movement of the knee demonstrated that these fragments with the surrounding fibrous tissue mass became jammed between the femur and tibia and pre-

vented extension beyond 170 degrees. The mass was excised. The patella was not sutured, but the wound was closed with plain catgut. Healing occurred by primary intention. The patient left the hospital on the eighteenth day. When seen again two months and five months after the operation he walked without a limp.

The cause of fracture of the tibial spine is always a severe injury associated with violent twisting of the body. In most cases rupture of the crucial ligaments occurs.

The author's conclusions are as follows:

1. Fracture of the tibial spine is an unusual occurrence, but not so rare as is generally believed.
2. Traumatism is the cause.
3. Rupture of the crucial ligaments is frequently associated.
4. The X-ray is necessary for the diagnosis.
5. Conservative treatment is usually successful in recent cases and occasionally successful in old cases.
6. In old cases with blocking of extension, operation is indicated.
7. A split-patella operation affords the best approach.
8. The final results of operation are excellent in all cases.

JOHN MITCHELL, M.D.

Leclerc, G.: The Treatment of Dupuytren's Fracture by Screwing on the Internal Malleolus (Le traitement des fractures de Dupuytren par le vissage de la malléole interne). *Presse méd.*, Par., 1923, xxxi, 165.

Leclerc describes Dupuytren's fracture as a fracture of the internal malleolus plus a fracture of the fibula, usually above its malleolus. As the fracture of the fibula is extra-articular and consequently without influence on the ankle mortise, proper fixation of the internal malleolus is all that is necessary for complete reduction. Leclerc urges open operation under local anæsthesia for the insertion of a screw through the fractured internal malleolus to hold it rigidly in place against the tibia. Movement of the ankle may be begun three or four days later.

KELLOGG SPEED, M.D.

Vulliet, H.: An Undescribed Fracture of the Calcaneum (Une fracture inédite du calcaneum). *Rév. méd. de la Suisse Rom.*, 1922, xlii, 815.

The author reported two cases with pain localized on the dorsum of the lateral surface of the foot and associated with moderate ecchymosis. The X-ray plates in each instance showed a fracture through the tip of the anterior process of the calcaneum. The cause was a fall.

LOYAL E. DAVIS, M.D.

SURGERY OF THE BLOOD AND LYMPH SYSTEMS

BLOOD VESSELS

Hammer, A. W.: Cirroid Aneurism: What Is It? How and When Can It Be Treated? *Med. Times*, 1923, li, 63.

Very little is known as to the etiology or morbid anatomy of cirroid aneurism, and there is a divergence of opinion as to its proper classification. Many excellent surgeons consider it a true aneurism, while others recognize a marked difference in the two conditions. Judd of the Mayo Clinic is quoted as follows: "True aneurism should be distinguished from cirroidal arterial tumors by the fact that these tumors are composed of numerous pulsating arteries and veins, and the mass of a true aneurism is an isolated enlargement over a large surgical artery."

Factors favoring cirroid aneurism are frost-bite, arteritis, and traumatism. Some ascribe the condition to a developmental fault in the vascular area affected.

The process shows itself as a pulsating meshwork of arterial sinuses from which pulsating vessels radiate. It occurs most frequently in the scalp, and next most frequently on the face and hands. Its greatest incidence is between the advent of puberty and adolescence.

The symptoms and signs of this condition present themselves after the disease is well advanced. They include bulging of the skin, pulsation, tortuosity and twisting of the arterioles, a thrill, and a bruit. Pain is caused by pressure on the cutaneous nerves.

In the treatment various measures have been tried. These include the injection of boiling water or an astringent into the mass, its destruction by means of caustics, electropuncture, ligation of one or both external carotids, and ligation of the common carotid. The last procedure is very dangerous, especially in the aged.

The author recommends the removal of the growth by excision of the aneurism, and the control of hæmorrhage by ligation of the afferent and efferent vessels.

I. EDWARD BISHKOW, M.D.

Guyot and Jeannency: The So-Called "Effort" Thrombophlebitis of the Axillary Vein (Thrombophlébite dite "par effort" de la veine axillaire; examen anatomo-pathologique). *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 231.

This article reports the case of a patient without tuberculosis, chronic intoxication, or hepatic disturbances, who developed thrombophlebitis of the axillary vein after slight exertion. Excision of the venous segment was followed by recovery.

Such cases are rare, only about twenty being known. In the authors' case microscopic examination of the excised vein segment showed the lesions

of endophlebitis with hyperplasia of the cells of the intima, a very marked leucocytic reaction, and organization of the clot. These findings suggest trauma and slight infection. They have therefore great value, not alone from the anatomo-pathological point of view, but also from that of pathogenesis. Trauma may cause thrombosis, especially in those predisposed, and very often favors localization in a vein with latent infection.

W. A. BRENNAN.

Mitchell, J. F.: Mesenteric Thrombosis. *Ann. Surg.*, 1923, lxxvii, 299.

The author reports a case of mesenteric thrombosis, or as he prefers to call it, mesenteric vascular occlusion, and gives a brief résumé of three other cases.

Mitchell's patient, a girl of 20 years, with a history which was negative except for indefinite digestive disturbances and a mild anæmia, was suddenly seized with violent epigastric pain accompanied by frequent vomiting. Six hours after the onset, physical examination revealed nothing abnormal, the pulse and temperature were normal, the leucocyte count was 21,000, and an enema produced a normal movement, but the intense abdominal pain persisted. On the morning of the second day the condition was essentially the same except that the abdomen seemed slightly full. There was no tenderness, rigidity, or dullness. At noon of the second day the pulse was 120 but the temperature was normal. Operation was performed about twenty-four hours after the onset of the condition.

Upon the induction of ether anæsthesia the patient stopped breathing and showed signs of deep shock, but was revived by artificial respiration. This was repeated on resumption of the anæsthetic. Saline was then given subcutaneously, ether was administered from time to time through gauze, and the patient restrained by assistants. When the abdomen was opened a large quantity of bloody fluid escaped and a black coil of intestine the lower 18 in. of the ileum, presented. The mesentery of the involved bowel was thick, oedematous, and infiltrated with blood, and there was no pulsation in the mesenteric vessels. The affected bowel was resected, a lateral anastomosis was made, and the abdomen closed with drainage.

For forty-eight hours the patient was in shock but then reacted promptly and convalesced rapidly. Three weeks after the operation she was walking. Three months later she was in perfect health and the only ill effect was an increased number of bowel movements.

The pathology of mesenteric thrombosis is essentially that of hæmorrhagic infarction. In 60 per cent of the cases it is produced by arterial occlusion,

usually of the superior mesenteric artery. The loop of bowel supplied by the occluded vessel becomes engorged with blood, the wall thickened, and the lumen distended with gas and fluid. Paralytic ileus develops, and if this is untreated, gangrene and perforation result. The mesentery becomes markedly infiltrated and thickened. If the affected loop of bowel is very small, collateral circulation may maintain the nutrition of the segment.

Severe and agonizing pain of sudden onset and as a rule located in the epigastrium or about the navel is the most striking and earliest symptom. In many cases it is constant rather than spasmodic, this being attributed to the distention of the mesentery. Tenderness and abdominal distention are usually present, but rigidity does not occur until late. On palpation the distended loop of bowel may give rise to a sensation of resistance or may be felt as a distinct tumor. Dullness may be elicited in the flanks because of free fluid in the peritoneum. Vomiting is usually severe for the first few hours. The vomitus may be bloody, but it decreases after the first few hours. Constipation is common but in rare cases there is a bloody diarrhoea. The temperature rises only in the late stages, but as soon as the condition is well established the pulse becomes small and rapid. The rapid pulse is accompanied by pallor or cyanosis and the patient presents the picture of profound shock.

The diagnosis is difficult because of the extreme variation in the symptoms. The differential diagnosis demands a consideration of the mechanical causes of intestinal obstruction as well as acute pancreatitis, twisted ovarian cyst, etc. An aid to the diagnosis is the fact that the condition is usually a mechanical rather than an infective process.

The treatment consists in immediate resection of of the affected area with a safe margin of healthy bowel. The mortality in cases operated upon, however, is estimated as from 75 to 90 per cent. According to Flint, the amount of small bowel which may be safely resected is about 50 per cent, but resection of smaller amounts may be attended by serious metabolic disorders. The clinical manifestations of metabolic disorders due to resection consist largely of diarrhoea and inability to absorb fat.

Despite reports of spontaneous recovery in suspected cases of mesenteric occlusion, abdominal exploration is the only rational procedure if the symptoms are acute. DENNIS H. KELLY, M.D.

Key, E.: Embolotomy in the Treatment of Circulatory Disturbances in the Extremities. *Surg., Gynec. & Obst.*, 1923, xxxvi, 309.

Key has removed emboli from arteries of the extremities ten times in the cases of nine patients. The operation was performed in from two hours to four days after the earliest symptoms. Gangrene occurred after four of the operations, but in the rest of the cases the results were good.

The first completely successful embolotomy was performed in 1911 by Sabey who removed an em-

bolus from the femoral artery six hours after its appearance. The second successful operation was done by Key.

Key reports fifty-one cases from the literature, including his own. Since there is no case of recovery when the operation was performed after twenty-four hours, he studied the thirty-six cases which were operated upon within twenty-four hours. In sixteen cases the results were good, in twelve gangrene developed, and in eight death occurred immediately.

The embolus with the resultant thrombus should be removed as thoroughly as possible without injuring the intima. Clamps placed above and below the embolus should not crush or injure the artery.

OSCAR E. NADEAU, M.D.

BLOOD; TRANSFUSION

Wright, A. E.: New Principles in Therapeutic Inoculation. *Lancet*, 1923, cciv, 365, 417, 473.

This is a long paper reviewing the history of therapeutic inoculation.

The original Pasteurian code is as follows:

1. The essential preliminary to any prophylactic procedure is to possess ourselves of the pathogenic organism, or if this is as yet undiscovered, of the virus that contains it, and to manufacture a vaccine from this.

2. The vaccine must consist of living germs, but these must be attenuated.

3. When an appropriately attenuated vaccine, that is, a vaccine which can be warranted to produce only a moderate clinical reaction, has been obtained, the exact quantum implanted will not be of material importance.

4. Bacterial vaccines should be implanted subcutaneously.

5. Vaccination is applicable only to the uninfected.

6. The protection conferred by the vaccine is always specific, in other words, protection is obtained only against the species of pathogenetic agent of which the vaccine consists.

7. Protection is obtained after the lapse of ten or more days from the date of inoculation.

8. Vaccination may be resorted to in the incubation period of a disease, provided the incubation period has still more than ten days to run.

Ehrlich enunciated the general principle that in vaccines the living or dead germs, as such, cannot be the actual antigens; that these must be dissolved elements; and that the bacteria in vaccines, whether they are dead or alive, may be in reality only mother substances of antigens. Pfeiffer, by the incorporation of dead typhoid bacilli into man, obtained a production of agglutinating substances. In consequence, attention was focused in the first anti-typhoid inoculations upon the production of agglutinins. Measurements of the bactericidal power of the blood were then undertaken, and it was established that when quanta of typhoid vaccine which produce moderately severe constitutional distur-

bance are incorporated, inoculation is followed first by a negative phase, in which the bactericidal power of the blood is reduced, and then by a positive phase, in which the bactericidal power may be increased as much as one-thousand fold; further, that when doses which produce very severe constitutional disturbance are employed, the negative phase is protracted, in some cases perhaps indefinitely; and lastly, that when doses which produce only trifling constitutional disturbances are employed, a positive phase is obtained without the intervention of any negative phase, and the bactericidal power of the blood is very considerably increased after an interval of twenty-four hours.

When the patient is infected the dose should stand in inverse relation to the volume of the infection.

Then follow principles founded upon a more detailed study of the changes produced in the blood by inoculation of vaccines *in vivo* and *in vitro*:

1. When vaccines in appropriate doses are added to the blood, whether *in vivo* or *in vitro*, instantaneous epiphyllactic response is evoked, and the maximal response may be expected after only a very short delay.

2. The epiphyllactic response in question consists in an extrusion of opsonic and bactericidal elements from the leucocytes. It is mainly by this ectocytic chemical action, and only to an insignificant extent by phagocytosis and internal digestion, that the bactericidal action of the leucocytes is exerted.

3. The antibacterial substances here in question are polytropic; in other words, they operate not only upon homologous but also upon quite unrelated species of bacteria.

4. When the effective dose of vaccine for intravenous application has been ascertained, this method of administration, because of its certainty and rapidity of action, is to be preferred to subcutaneous inoculation.

5. In septicæmias and other heavy bacterial infections the leucocytes lose their power of responding to vaccines. In such cases it is essential before inoculating to satisfy one's self that the blood still retains its power of epiphyllactic response.

6. When, by reason of the poisoning of leucocytes, active immunization by means of vaccines is ruled out, the method of immuno-transfusion should be resorted to; in other words, healthy human blood which has made proper epiphyllactic response should be incorporated.

These data were obtained by adding measured quanta of vaccines or, as the case may be, living bacteria, to the blood as a whole or its separate elements.

The author then considers in detail the nature of epiphyllactic response. The epiphyllactic response can be evoked in the blood by vaccines; it can be evoked both *in vitro* and *in vivo*; it is characterized by a sudden increase in the bactericidal and opsonic power of the serum, and this increase is the result of a sudden evacuation of polytropic bactericidins and opsonins from the leucocyte. When a normal blood

is vaccinated *in vitro* with dead bacteria and then tested with living bacteria, and also when blood is tested which has been acted upon by antigens *in vivo*, the event will depend upon the total of antigen which has been brought into operation in the vaccinating procedure or auto-inoculation on the one hand, and the assaying procedure on the other.

The experiments described brought into prominence the fact that, in immunization, quantitative considerations dominate the situation. When we want to evoke immunizing response in the blood we must employ one particular range of doses, and when we want to ascertain what has been achieved, we must again employ a particular range of doses.

MORRIS H. KAHN, M.D.

LeCalvé, J.: A Vascular Crisis Produced by Constriction of an Extremity (Crise vasculo-sanguine par ligature d'un membre). *Presse méd.*, Par., 1923, xxxi, 78.

In previous experimental work the author demonstrated that constriction of an extremity produces very definite modifications in the vascular system which are analogous to those produced in colloidal or anaphylactic shock. These changes consist of a decrease in the systolic blood pressure, a positive oculo-cardiac reflex, slowing of the pulse, an increase in the coagulation time, a decrease in the number of erythrocytes and leucocytes, and inversion of the leucocytic differential count. The same findings occur in asthma, urticaria, angioneurotic œdema, and alimentary anaphylaxis.

The author believes that such constriction of an extremity may be used as a prophylactic measure to combat anaphylactic shock—in other words, as a method of desensitization. In clinical cases it has prevented attacks of asthma, urticarial attacks, and anaphylactic shock attendant upon the injection of antitetanic and antidiphtheritic serum and neosalvarsan. It is believed that the vascular changes so produced occur by reflex stimulation of the vagus which results in a reflex slowing of the heart and persistence of the oculo-cardiac reflex. Vasodilation occurs within the viscera while the peripheral capillaries become constricted. The latter fact probably explains the leucopœnia. LOYAL E. DAVIS, M.D.

Mino, P.: Research on Variation in Blood Groups (Ricerche sulla modificabilità dei gruppi sanguigni). *Riforma med.*, 1923, xxxix, 75.

The phenomenon of iso-agglutination of human blood has rendered possible the differentiation of four different qualities of blood. Classification in a given group is a racial and individual characteristic which is constant through life and transmitted by heredity.

A short time ago Eden claimed that he had been able to cause a change in iso-agglutination by the administration of certain chemical substances. Mino repeated Eden's experiments on thirty persons but found no modification in the blood group in any case. W. A. BRENNAN.

Leebron, J. D.: **A Preliminary Report on Blood Transfusion in Malnutrition and Infantile Atrophy.** *N. York M. J. & Med. Rec.*, 1923, cxvii, 298.

In cases of malnutrition and infantile atrophy which do not respond to pediatric measures or fail to make any progress, transfusion may give an early favorable outcome. The indications for transfusion are: (1) improper assimilation of food resulting in atrophy and progressive loss of weight; (2) secondary anemia from any cause resulting in malnutrition; (3) circulatory depletion from such conditions as acute gastro-intestinal disturbances with the associated signs of collapse; (4) cases of apparent exhaustion with coldness of the extremities, semicyanosis of the skin, very feeble heart sounds, and a thready pulse, and in which a definite diagnosis cannot be established. If there is no anemia, transfusion is of little value.

Death may result from hypertransfusion or too rapid introduction of the blood. It is better to give small amounts, repeated in ten days to two weeks, than to give a large amount at the first transfusion. The author considers the limit of safety to be within 10 c.cm. to the pound of body weight.

In selecting donors the following conditions are essential: (1) a negative Wassermann; (2) a satisfactory blood count; (3) compatibility of the donor's and recipient's blood. The third test should never be omitted. Pemberton states that infants develop their own group after two weeks. In the cases of extremely ill patients and when the type reading is doubtful, a crossed hemolysis test should be made.

The indirect method using citrated blood or the direct method using whole blood with the syringecannula technique may be employed. The superior longitudinal sinus seems to be the simplest route for transfusion in infants when the anterior fontanelle is open. The basilic, cephalic, or the internal saphenous vein may be used. The blood should be administered very slowly. The author allows forty to sixty seconds for each cubic centimeter of blood.

Meleny states that repeated transfusions increase the likelihood of a reaction. In dehydrated cases transfusion seems more permanently beneficial than intraperitoneal saline injections. Ashby attributes the favorable results of transfusion to stimulation of the bone marrow and the functioning of the transfused corpuscles.

The author's cases showed improvement in health with disappearance of the restlessness and anuria and improvement in the general nutrition, tolerance of food, and a lessened tendency to subnormal temperature. The hemoglobin increased 10 per cent with each transfusion and the red blood cells increased as much as two million.

Robertson, Brown, and Simpson report a mortality of 45 per cent in eighty-seven cases of marasmus treated by transfusion, and a mortality of 57 per cent in another series of cases treated without and

with transfusion. Of the patients with collapse, 43 per cent made a complete recovery. In the second series of cases 82 per cent of the moribund patients died.

WALTER C. BURKET, M.D.

LYMPH VESSELS AND GLANDS

Magnus, G.: **The Demonstration of the Lymph Radicles in Human and Animal Tissues** (Die Darstellung der Lymphwurzeln in menschlichen und tierischen Geweben). *Deutsche Ztschr. f. Chir.*, 1922, clxxx, 146.

Magnus worked out a special procedure, the filling of the lymph vessels with gas, for the demonstration of the smallest beginnings of the lymph vessel system and the source of its roots. Hydrogen peroxide liberates oxygen as soon as it comes into contact with lymph, but not when it comes into contact with the tissues. The oxygen accumulating in the lymph vessels renders them visible.

Hydrogen peroxide may be brought into contact with the lymph channels by direct penetration through the serous membranes, the nascent oxygen then escaping in a retrograde direction through the stomata. It may penetrate also by diffusion through the mucous membranes but as these membranes have no stomata and are impermeable to gas, the oxygen cannot escape in a backward direction. In tissues which are impermeable to hydrogen peroxide, it must be injected under the surface with a syringe. The examination is made of the specimen in its natural state and with a strong light and a binocular microscope.

In contrast to the blood vessels, the lymph tracts show no constant increase in their caliber, but rather a varying width, which is especially prominent when there is simultaneous filling of the blood vessels. In the peritoneum they are branched and net-like. In the presence of an inflammation they are especially distinct. The stomata, on the other hand, are constantly large. They represent the beginnings of the lymph tracts from the serous cavities. With this method it is possible also to observe the communication between the peritoneum and pleura. Pictures of other portions of the peritoneum show parallel lymph vessels, the arrangement of which is dependent on the structure of the tissue. In the colon, a network of lacteals surrounds the crypts.

The papillae of the small intestine contain a central lymph vessel surrounded by delicate blood vessels. The subcutaneous tissue shows wide, irregular lymph spaces, of which the connective tissue to a certain extent represents the covering. The author discusses also a few pictures of the cornea.

In the domain of pathology, the sac of the meningocele in spina bifida proves to be a hydromeninx, which possibly produces the bone cleft secondarily. In contrast to a hernial sac, the lymph vessels in the hydrocele membrane do not fill up when the fluid is dropped on them because, as there are no stomata, the current from within is arrested in the wall. The

conditions are similar in peritoneal tuberculosis. The fact that the synovial cavities of the joints and tendon sheaths are without stomata explains why they are not involved in generalized oedema.

KOENIG (Z).

Sistrunk, W. E.: The Results Obtained in Elephantiasis Through the Kondoleon Operation.
Minnesota Med., 1923, vi, 173.

Sistrunk reports the end-results of the Kondoleon operation in forty cases of elephantiasis. He believes this operation is a definite means of controlling the disease, although it is not always possible to restore the limb to normal. There seem to be four types of the disease: (1) lymphatic or venous obstruction usually followed by lymphoedema, the elephantiasis probably being caused by invasion of the tissues by streptococci; (2) definite infection through an open wound; (3) injury to the limb and probably phlebitis preceding the disease; and (4) cases in which the etiological factor is not apparent.

All of the author's patients had had lymphoedema before the elephantiasis. If lymphoedema is not controlled it slowly increases, and in certain cases, probably as the result of infection, there is a tremendous increase in the fibrous tissue elements of the skin, subcutaneous tissue, aponeurosis, and superficial lymphatics, leading gradually to elephantiasis. The subjects are prone to recurring attacks of erysipelas, and each of these attacks tends further to increase the difficulty in drainage. Emphasis is placed on the fact that if the patient is put to bed with the limb elevated and firmly bandaged for ten days or longer, the size of the limb may decrease considerably and the tissues may become softer. It will then be easier to determine the amount of skin which may be sacrificed without preventing satisfactory closure of the skin edges. The vascularity of the parts will also be diminished. If there is a low-grade streptococcal infection in the tissues, such pre-operative treatment gives it a chance to subside.

Elephantiasis involves only the superficial tissues. Even in advanced cases the tissues lying beneath the aponeurosis are normal. Because of this fact Kondoleon conceived the idea of connecting the deep and superficial lymphatics by the removal of a large amount of aponeurosis, the skin being allowed to drop down on the muscles. New lymphatics and blood vessels then form and connect the two circulations, the deep circulation thus draining the stagnated lymph from the superficial circulation. The technique of the operation as performed by Sistrunk is as follows:

A long modified elliptical incision including the skin to be sacrificed is made on one side of the af-

fected limb. On the outer aspect of the leg this incision extends from the crest of the ilium to a point a little below the external malleolus of the fibula. In order to facilitate wide removal of the subcutaneous fat, the skin is reflected on each side of the incision for a distance of about 3.75 cm. The skin is then retracted and underneath each of the edges a long incision is made through the oedematous subcutaneous fat down to, and including, the aponeurosis. These incisions are made parallel to the original skin incision and are connected at their upper ends by a transverse incision. The freed tissue is left attached to the underlying muscle by the aponeurosis. By traction on the freed tissue the aponeurosis is easily dissected from the muscle and removed in one long piece, containing the skin, oedematous fat, and aponeurosis. Bleeding vessels are temporarily controlled by hæmostats. After removal of the tissues these forceps are taken off, surprisingly few of the vessels needing ligation. The wound is closed with interrupted silkworm-gut sutures, without drainage. It is usually necessary to perform a similar operation on the opposite side of the limb. The incision for the second operation extends from the extreme upper portion of the inner surface of the thigh down to a point a little below the internal malleolus of the tibia.

If good results are not obtained by the first operation Sistrunk believes that much is to be gained by the continued removal, if necessary, of thickened and deformed areas. These repeated incisions remove much diseased tissue and allow the formation of new blood vessels and lymphatics which assist in draining the affected limb.

Because of the considerable shock which follows operation in extensive cases it is advisable to operate on one side of the limb only. To diminish shock the patient is given $\frac{1}{6}$ gr. of morphine before operation, and after operation is given treatment for shock.

The patient should bandage the limb for an indefinite period after operation. If the limb swells considerably in spite of bandaging, he should go to bed, elevate the limb, and keep it firmly bandaged.

If increasing attacks of erysipelas develop after operation, streptococcal vaccine should be given over a long period.

Sistrunk believes the failures of this operation are due to the fact that the surgeon did not observe the principles outlined. The patient should clearly understand that the operation is being done to control a disease which, if left untreated, will grow progressively worse, and that afterward it will be necessary to keep the leg bandaged for an indefinite period.

Of Sistrunk's forty patients, thirty obtained good results and the rest were benefited.

GYNECOLOGY

UTERUS

Hirst, J. C., and Mazer, C.: The Palliative and Operative Treatment of Prolapse of the Uterus.
Am. J. Obst. & Gynec., 1923, v, 225.

For several years the authors have not regarded diabetes as a contra-indication to operation. In any case of prolapse, the bulk of the discomfort is due to two factors, the protrusion of the cystocele and the associated backward displacement of the uterus. If these can be corrected, the patient will be made comfortable. Therefore in cases in which the cervix was not too badly diseased and any prolonged operation was inadvisable, the authors have done an interposition operation under local anæsthesia. This can be performed painlessly and quickly, and at once corrects the cystocele and the retroversion. Nothing is done to the cervix or perineum. The only pain is felt when the uterus is pulled down for the placing of the sutures, and is negligible. The anæsthetic used is 0.5 per cent novocaine solution with 10 drops of 1:1,000 adrenalin to each ounce. This is infiltrated thoroughly in the space between the bladder and the uterus. The peritoneum, when exposed, is infiltrated separately.

The palliative treatment is used only for patients who refuse to consider any form of operation, and yet demand some relief from their constant discomfort, and for those whose age precludes the possibility of operation. Before any form of pessary can be employed, ulcerated areas must be healed, a process consuming from two to four weeks. Rest in bed, the cooperation of the patient, normal salt solution douches twice daily, and painting of the ulcerated surface with nitrate of silver solution every forty-eight hours are all that is necessary. The patient should be told the nature of her condition so that she will have patience for the time required for relief.

Occasionally the prolapsed mass is so large and oedematous that it cannot be easily replaced in the vagina—the so-called irreducible prolapse. In such cases the patient is placed in the knee-chest posture and the mass is surrounded by hot towels for ten to fifteen minutes. It is then possible by a process of taxis, while the patient is still in the knee-chest position, to replace the uterus easily.

Operative treatment should always be recommended unless it is contra-indicated by the patient's age or by disease.

It is a grave mistake to perform abdominal or vaginal hysterectomy for prolapse unless the uterus is so diseased as to make its removal imperative. If hysterectomy is necessary, however, it must be followed by as careful and extensive plastic work on the anterior and posterior vaginal

walls as if the uterus still remained. The uterus is the best possible support for the retention of the protruding cystocele; no other structure, neither the broad ligaments nor the vaginal fascia, will satisfactorily take its place.

A properly performed plastic operation in no way militates against subsequent childbirth. Recurrence need not be feared if the patient is given proper care in her confinement.

The interposition operation described varies from that of Watkins in that the split vaginal fascia is caught far back and near the urethra with a needle armed with No. 3 chromic catgut. The needle is passed through the anterior wall of the uterus about $\frac{1}{2}$ in. below the tubal insertions, and then through the fascia on the opposite side. This does away with the extreme anteversion of the uterus caused by the typical Watkins operation. When the stitches are tied, the uterus is lifted high up behind the symphysis, and in this manner, bulging of the uterus and anterior wall, a not uncommon cause of failure in the Watkins operation, is entirely prevented. Three or four similar stitches are then taken, each a little lower than the one preceding, and are left untied.

If the patient is of child-bearing age, the fascia is caught about one-third of the distance from the urethra to the cervix, and the needle is passed through the anterior wall at the point where the peritoneum is cut and through the fascia of the opposite side. A second stitch is placed below the first. The uterus is then left as an intraperitoneal organ and the canal through which the bladder had prolapsed is closed.

Of many hundreds of operations of this type performed in the past twenty years the authors know of only six which failed. These were chiefly perineal failures. The most difficult cases of prolapse to cure are the recurrences following ill-advised hysterectomy.
E. L. CORNELL, M.D.

Kross, I.: Menstruation—An Inquiry into Its Etiology. *Am. J. Obst. & Gynec.*, 1923, v, 285.

At the present time, Fraenkel's theory that the corpus luteum is the responsible factor in the causation of menstruation, is the theory most generally accepted.

Against this theory the author cites briefly two very instructive cases which were recently studied in the Gynecological Department of the Mount Sinai Hospital.

The first case was that of a woman 28 years old who was admitted to the hospital October 1, 1921. Menstruation began at 12 years and thereafter occurred irregularly at intervals of five to eight weeks. The periods lasted from five to twelve days and were very profuse. During eleven years of married life

the patient had given birth to five children, the last one, two years before her admission to the hospital. One and a half years ago, following a period of amenorrhœa of six months, she began to bleed continuously. After two months she was curetted. She then had a period of amenorrhœa of seven months' duration succeeded by continuous bleeding lasting three months and another period of amenorrhœa lasting five months followed by menorrhagia persisting for four months. She was then admitted to the hospital.

Except for a moderate cysto-rectocele and a slightly lacerated cervix, the physical examination was negative. A hysterectomy and a bilateral salpingo-oophorectomy were performed. The uterus was normal in size but the endometrium was hyperplastic and œdematous. The ovaries were enlarged to twice their normal size, and had a thickened tunica albuginea. Sections showed the entire circumference of the ovaries to be studded with small cysts 2 to 5 mm. in diameter. Careful examination failed to reveal any corpora lutea.

The second patient was admitted to the hospital April 24, 1922. Her family and past history were negative. Menstruation began at 13 years, appeared regularly every four weeks, lasted from four to six days, and was very profuse. During the past two years it occurred every two to three weeks and had become much more profuse. Physical examination revealed a uterus that was slightly enlarged and a left cystic ovary about the size of a plum. On April 28, 1922, a left salpingo-oophorectomy and partial resection of the other ovary were performed. The pathologico-anatomical findings in the ovaries were similar to those of the first case. No corpora lutea could be found.

EDWARD L. CORNELL, M.D.

Blacker, G.: The Treatment of Menorrhagia by Radium. *Lancet*, 1923, cciv, 421.

Radium has now been used in a sufficient number of cases of menorrhagia to warrant conclusions as to the class of cases suitable for such treatment and as to the results. Three types of cases are commonly treated: (1) hæmorrhage at the menopause; (2) hæmorrhage due to small fibroids; and (3) hæmorrhage in young women with no signs of general or local disease.

In cases of hæmorrhage at the time of the menopause radium is certain in its results whatever the cause of the bleeding. In cases of fibroids its use should be limited to tumors not larger than the uterus at the fifth month of pregnancy which are not complicated by disease of the appendix, do not cause pressure, and do not markedly project into the interior of the uterus. It should not be employed for submucous tumors because of the danger of infection and sloughing of the growth. Severe hæmorrhage in young women without general or local disease should be treated with radium in suitable doses. Temporary or complete amenorrhœa may be produced. If the hæmorrhage returns, the procedure may be repeated.

The technique consists of careful examination, exploratory curettage to obtain scrapings for microscopic examination, the introduction of the tube of radium to the fundus of the uterus, and packing of the cervical canal and vagina with gauze. The screen should be sufficient to cut off all beta and softer gamma rays. Two millimeters of lead and 3.0 mm. of rubber are employed in emanation tubes, and 1.0 mm. of platinum and 2.0 mm. of rubber for radium element.

The average dose in the treatment of hæmorrhage of the menopause is from 2,000 to 2,400 mc.-hrs. For fibroids a repetition of this dose may be necessary. In the cases of young women the amount should be smaller if it is desired to produce only a partial or temporary amenorrhœa. The term "milligram hours" provides a fair but not accurate estimate of dosage.

Radium should never be introduced into the uterus when there are signs of inflammation of the genital tract, but in carefully selected cases its application is free from danger.

Complete amenorrhœa may follow the treatment immediately. In other cases one or two excessive losses occur before complete amenorrhœa is obtained. Minor symptoms of the menopause, such as flushing, usually follow the complete cessation of menstruation. Not infrequently, excessive bleeding occurs immediately after the radium treatment. This is attributed to destruction of the graafian follicles in the ovaries. It has been suggested that carcinoma of the body of the uterus may develop years after the use of radium, but a large number of observations would be necessary to establish this fact.

Of seventy-seven patients treated by the author, nine cannot be traced. Of the remaining sixty-eight, thirty-four were treated for hæmorrhage at the menopause, twenty-three for fibroids, and eleven for simple hæmorrhage. The average dose was from 2,000 to 2,400 mc.-hrs. In thirty-three of the thirty-four cases treated for hæmorrhage at the menopause, complete amenorrhœa resulted. In fifteen, it began immediately; in eleven, after one period; and in seven after two or more periods. In the twenty-three cases of fibroids, the average dose was from 2,500 to 3,000 mc.-hrs. In sixteen cases complete amenorrhœa followed the treatment: in ten, without any further bleeding; in three, after one period; and in three after two or more periods. In two cases a second application was necessary. In five cases the treatment was unsuccessful or only partially successful. In six of the eleven cases treated for simple hæmorrhage complete amenorrhœa resulted after one or more periods. The dose varied from 660 to 3,180 mc.-hrs., the average being from 2,000 to 2,400 mc.-hrs. In three cases the excessive loss at the periods was controlled. In two cases, hysterectomy was performed.

Amenorrhœa following the application of radium is due to the effect of the radium on the graafian follicles of the ovaries. There is also some local destructive effect on the mucosa of the uterus. Recur-

rence of the periods is associated with the maturing of fresh graafian follicles. The shrinkage of fibroids is due to the onset of the menopause rather than the direct effect of the radium upon the tumor. In the cases of young women who have been treated with radium, pregnancy may occur when the periods return to normal.

ALOYSIUS J. LARKIN, M.D.

Kouwer, J. B.: Radiotherapy or Surgical Treatment in Fibromata of the Uterus? (Radiothérapie des fibromes de l'utérus ou traitement chirurgical?) *Gynéc. et obst.*, 1922, vi, 385.

To supplant surgical interference any form of non-operative treatment must give better results or must be simpler in execution and give results as good. The author objects to the use of radiotherapy for fibromata of the uterus because: (1) it destroys the physiological function of the ovaries, (2) the uterus is sacrificed, (3) it institutes a radical form of therapy for a pathologic condition which in the majority of cases cannot be accurately diagnosed before operation, (4) it may produce necrosis and gangrene, (5) malignant degeneration cannot be excluded, (6) it is contra-indicated by inflammation of the adnexa. Uterine hæmorrhage occurring at the climacteric often masks the presence of a well-developed carcinoma. Radium or X-ray therapy should never be employed for the relief of such hæmorrhage unless the absence of carcinoma has been demonstrated by microscopic examination.

LOYAL E. DAVIS, M.D.

Schmitz, H.: The Treatment of Carcinoma of the Uterus, with Special Reference to Surgery, the X-Ray, and Radium. *Northwest Med.*, 1923, xxii, 77.

Curative treatment of carcinoma of the uterus requires the total removal of all neoplastic tissue. Success depends on a correct diagnosis and the extent of the lesion. The cases are grouped as:

1. Localized carcinoma; neoplasm confined to the uterus.
2. Borderline carcinoma; neoplasm possibly invading other tissues.
3. Inoperable carcinoma; demonstrated invasion of other tissues.
4. Advanced carcinoma; "frozen pelvis," marked cachexia, or distant metastases.
5. Complicated carcinoma; associated grave constitutional disease.

Localized carcinoma is treated by panhysterectomy. The vaginal route may be employed when indicated. The Wertheim operation with its operative mortality of 15 to 25 per cent is never used in the clinic. Surgery in borderline cases results in an increasing number of accidents, a higher operative mortality, and recurrence. Confidence in surgical treatment can be re-established by operating only when the growth is confined to the uterus.

Groups 3 to 5 contra-indicate operation and unfortunately constitute 80 to 90 per cent of the cases of neoplasms of the uterus entering the clinics.

Of the various methods employed in treating borderline and inoperable cervical carcinoma, radium

and the X-ray have received more attention than any others. The success of radiation therapy depends on delivering to a deep cervical carcinoma sufficient ray to destroy it without permanently traumatizing normal vital tissues. The technique depends on: (1) the intensity of the rays of radium and the X-rays at various distances on physical bases, (2) the erythema dose, and (3) the lethal carcinoma dose. Graphs are given showing the X-ray intensities by centimeters, and of 50 mgm. of radium in water; these are combined, giving the summation intensities, and upon these graphs are superimposed diagrams of cross and sigittal sections of the pelvis in various conditions treated. It is possible by these methods to destroy deep malignancy without causing permanent injury to normal vital tissues.

The subjective relief, the local healing, the five-year relief, and the absolute cure should be determined by means of a follow-up system. Tables are given showing the number of patients treated year by year and the outcome. Of 100 patients with cervical carcinoma who were treated from 1914 to 1917, twelve are alive and well today. In fifty-nine cases belonging to Groups 1, 2, and 3, a cure was obtained in eleven (18.75 per cent), while in fourteen cases belonging to Groups 1 and 2 a cure was obtained in six (42.85 per cent). The results in advanced and inoperable cases are poor.

Advanced cases must be treated with care as heavy raying may cause a fatal toxæmia. From 600 to 1,000 mg.-hrs. are given merely for palliation. The author warns against the use of surgical or other measures following fairly successful radiation and against the repetition of the radiation, providing the proper dosage was applied in the initial treatment. From nine to eighteen months are required after full radiation dosage for the cells fully to recover from the effect, and if the treatment is repeated within that time a radiation ulcer or necrosis with irreparable damage may follow.

With regard to pre-operative and postoperative irradiations the author states that if the surgeon is in doubt the dosage should be the same as that which would be given if the uterus had not been removed. This cannot be accomplished without the use of phantoms. The latter are made of bakelite or balsa wood.

The article is summarized as follows:

1. Cervical carcinomata should be grouped for prognosis and treatment.
2. Careful statistics should be kept to establish the efficacy of the treatment.
3. The following rules are established: (1) Localized carcinoma should be treated by panhysterectomy. (2) Borderline and inoperable cases should be treated by a combined full dose of radium and X-ray. (3) Advanced and recurrent cases should be treated palliatively with radium and the X-ray.
4. Radiation therapy should not be preceded or followed by operation.
5. Repetition of a course of radiation therapy is contra-indicated.

ALOYSIUS J. LARKIN, M.D.

Mahle, A. E.: *The Morphological Histology of Adenocarcinoma of the Body of the Uterus in Relation to Longevity; a Study of 186 Cases.* *Surg., Gynec. & Obst.*, 1923, xxxvi, 385.

The author reports 186 cases of carcinoma of the body of the uterus from the Mayo Clinic. An attempt was made to prognosticate the malignancy or the mortality of these cases on the basis of the cellular changes. MacCarty's standard of cellular differentiation was employed. The tumors were grouped into four types. Grade 4 represented the most malignant type of cell, with practically no differentiation throughout the entire tumor. Grade 1 comprised the early cases in which the carcinoma was extremely small and the cells showed a high degree of cellular differentiation or approximation of the normal type of cell.

The longest duration of symptoms was in cases of Grades 2 and 3; the longest average duration of symptoms was in the least malignant cases, those of Grade 1, and the shortest average duration of symptoms in the most malignant cases, those of Grade 4.

All patients with Grade 1 malignancy are still living, while those with Grade 4 malignancy are dead. Seventy-five per cent of the latter died of carcinoma. Of the patients with Grade 2 malignancy 71.76 per cent are still alive, while of those with Grade 3 malignancy only 38.09 per cent are alive. The mortality due to carcinoma in these two groups was 62.06 per cent and 74.19 per cent. The number of patients who are dead as well as the number of deaths due to malignancy increased directly with the degree of malignancy.

Abdominal hysterectomy was performed on 136 (73.11 per cent) of the 186 patients, and vaginal hysterectomy on forty-five (24.19 per cent). The percentage of postoperative good results in patients still living is slightly higher among those subjected to abdominal hysterectomy, while the incidence of recurrence is slightly higher in those subjected to vaginal hysterectomy.

The author draws the following conclusions:

The more active the carcinoma, the shorter the clinical symptoms.

The shape of the lesion appears to be related to the degree of cellular differentiation; the more malignant the carcinoma, the less liable it is to assume a papillary form.

A carcinoma of a high grade of malignancy grows larger and invades more extensively in a given length of time than one of a lower degree of malignancy. Lymphocytic reaction appears more marked in the groups which show a higher degree of malignancy.

The clinical diagnosis of carcinoma of the body of the uterus is possible before curettage or hysterectomy in 40 per cent of all cases.

A series of adenocarcinomata of the uterus can be so classified according to the degree of malignancy that the ultimate postoperative results will vary in direct proportion to the mortality of each group.

ADNEXAL AND PERI-UTERINE CONDITIONS

Geist, S. H., and Harris, W.: *Experimental Investigation of the Value of the Various Commercial Ovarian Extracts.* *Endocrinology*, 1923, vii, 41.

One cubic centimeter of preparations of corpus luteum, ovarian substance, and ovarian residue was injected into groups of castrated rabbits every third day. From fourteen to eighty-five days later the animals were killed and the pelvic organs, thyroid, adrenals, pituitary gland, and mammary glands were removed.

In all cases the uterus showed atrophy. This was less marked in the animals killed early than in those killed later. The mammary glands also were atrophied. The pituitary gland did not show much change. The thyroids of the injected animals appeared somewhat enlarged. The adrenals showed areas of necrosis and fatty changes.

In the injected animals there seemed to be a distinct loss in weight as compared with the controls. This may have been due to an increase in the metabolic rate resulting from changes in the thyroid gland.

It would appear therefore that the injection of the several commercial preparations is unable to prevent the atrophy following castration in rabbits. The cervix is not involved in this process.

H. W. FINK, M.D.

Weis, H. A.: *A Contribution to the Study of the Effects of Radium upon Rabbit Ovaries.* *Surg., Gynec. & Obst.*, 1923, xxxvi, 373.

Maury is quoted as stating that a dosage of 600 mg.-hrs. of radium has no influence upon the small graafian follicles. In the author's investigations he used 600 mg.-hrs. of radium because it is believed by most authorities that this dosage applied in the human uterus will produce a permanent amenorrhœa, a result generally regarded as due to the destruction of the maturing graafian follicles. As a rule, 50 mgm. were used in two 25-mgm. tubes, screened in such a manner that only the gamma rays were employed. The tubes were fastened as nearly as could be determined directly over the rabbit's ovary. Fifty milligrams were used for twelve hours or 100 mgm. for six hours.

In nine rabbits the right ovary was removed, the left ovary was exposed to the rays, and the two were then compared microscopically. In seven rabbits the right ovary was rayed and then both ovaries were removed. Finally, both ovaries were exposed to radium and the rabbits were bred after an interval of six weeks. In no case was the radium more than $1\frac{1}{4}$ in. from the ovary.

The author describes the structures of the normal rabbit ovary in detail in order to distinguish between normal atresia and degeneration which might be caused by radium. He then gives the detailed histories of eighteen rabbits. The findings are summarized as follows:

1. In none of the ovaries was any change noted in the single row of germinal epithelium after exposure to radium.

2. There was no evidence of obliterative endarteritis.

3. Six ovaries showed no change in the connective-tissue cortex, but ten showed an increase in the number of cells in this area.

4. There was no evidence to prove that the ova and maturing graafian follicles had been affected. It is certain that the young and early maturing ova were not harmed.

From these investigations the conclusion is drawn that a dosage of 600 mgm. hrs. of radium has no ultimate detrimental effect upon rabbit ovaries. With regard to clinical cases it may be said that when intra-uterine treatment with radium is given, for menorrhagia, for example, the resulting amenorrhoea is due, not to the effect of the radium upon the ovarian follicles, but to its effect upon the endometrium, which is severely burned. If this theory is correct, and several of the best authorities on radium therapy have accepted it, much that has been written with regard to the effect of radium must be rewritten and treatment with radium must be revised.

ALOYSIUS J. LARKIN, M.D.

EXTERNAL GENITALIA

Dougal, D.: Primary Carcinoma of the Vagina Treated by Hysterovaginectomy. *J. Obst. & Gynec. Brit. Emp.*, 1923, xxx, 38.

Holland, E.: A Case of Primary Carcinoma of the Vagina. *J. Obst. & Gynec. Brit. Emp.*, 1923, xxx, 40.

Stevens, T. G.: Squamous Epithelioma of the Vagina. *J. Obst. & Gynec. Brit. Emp.*, 1923, xxx, 42.

Spencer, H. R.: Adenoma of the Vaginal Fornix Simulating Cancer of the Cervix. *J. Obst. & Gynec. Brit. Emp.*, 1923, xxx, 44.

Primary carcinoma of the vagina is rare. The age at which it occurs is somewhat later than that of malignant growths of the cervix. The irritation of pessaries has been believed to play a part in its development. Its most common site is the posterior wall of the vagina. Two forms of growth are described, one beginning as a solitary nodule which subsequently breaks down and forms an ulcer, and the other an infiltrating form. Dougal's patient was a married woman 44 years of age who had borne eight children, the last eight years previously. She had never worn a pessary. The complaint was bleeding on coitus for the past six months and more recently a blood-stained discharge. She had no pain and her general condition was good. Examination revealed a friable plaque-like growth occupying

the upper two-thirds of the posterior vaginal wall and extending almost to the posterior lip of the cervix. The growth was oval in shape, with its long axis vertical, and appeared to be freely movable. At operation, practically the entire vagina, the uterus, and the appendages were removed. Recovery was uneventful, and six months after the operation there had been no recurrence. Microscopically the tumor was a typical squamous-cell carcinoma.

Holland's patient was a woman 46 years old who had had four children and was still menstruating regularly. For the past five months she had had an offensive watery, blood-stained discharge, and for the past two months a good deal of hæmorrhage but no pain. Examination revealed a hard, circular, raised, and rough friable growth on the upper third of the posterior vaginal wall. The growth seemed to be well localized. Under stovaine spinal anesthesia the vagina and the uterus, together with the pelvic cellular tissue and iliac lymphatic glands were removed. Histologically the growth proved to be a solid, trabecular, squamous and horny-celled carcinoma of the vagina. Four months after the operation there were no evidences of recurrence.

Stevens' patient was a woman 53 years old who had had one child and a miscarriage and was just entering the menopause. For two months there had been a bloody discharge. When seen by Stevens the patient complained of pain in the pelvis radiating down the legs and a sense of weight and pressure. She had worn a pessary for a number of years but not during the past year. Upon examination a large, circular, flat and fairly well localized nodular growth was found on the posterior vaginal wall. At operation the uterus and the upper two-thirds of the vagina were removed. On histologic examination the growth was found to be a typical squamous epithelioma.

Spencer's patient was a woman 54 years old who had had two children and one miscarriage, had been a widow for twenty-five years, and had suffered from intermittent hæmorrhages for several years. The menopause occurred six years previously. There was no pain. Vaginal examination revealed a brittle growth as large as a large duck's egg, which nearly filled the vagina. The tumor was irregular on the surface and resembled a proliferating carcinoma of the cervix. It was very easily broken away from the vagina with the fingers, and was found to arise from the vaginal wall by a pedicle at the fornix. The cervix itself was normal. Microscopically the growth proved to be a benign adenoma. In spite of this, however, the patient was given further treatment with radium. She was well and free from symptoms two and a half years later. H. W. FINK, M.D.

OBSTETRICS

PREGNANCY AND ITS COMPLICATIONS

Welz, W. E., and Alles, R. W.: A New Measurement as an Aid in the Diagnosis of Rachitic and Generally Contracted Pelves. *Am. J. Obst. & Gynec.*, 1923, v, 283.

In the authors' opinion the measurement of the pelvic height is not only more easily determined but also of greater value than the measurement of the conjugata externa of Baudeloque.

The patient is placed preferably on her right side in the exaggerated Sims position. The left leg is flexed about 120 degrees with the body and the patient instructed to relax all the muscles of the leg. One point of the pelvimeter is then placed firmly upon the tuber ischii and held by the left hand of the operator while the fingers of his right hand seek the highest point of the crest of the ilium, the other point for the measurement. The tips of the pelvimeter are then depressed to bring them as closely as possible to the bony landmarks. One centimeter is deducted from the reading to allow for the thickness of the overlying tissue.

When the measurement is 20 cm. or less, a thorough internal examination is indicated. In the authors' series of twenty-five rachitic and generally contracted pelves, there were two in which the pelvic height was above 19.5 cm. Outlet contraction and funnel pelvis show no definite alteration in this diameter.

E. L. CORNELL, M.D.

Oastler, F. R., and Jacobi, H. G.: Report of a Case of Toxæmia of Pregnancy with Acute Yellow Atrophy of the Liver. *Am. J. Obst. & Gynec.*, 1923, v, 271.

The patient was admitted to the hospital October 12, 1921, with the complaint of vomiting, severe headache, dizziness, and pain in the lower part of the abdomen on the left side. She had not menstruated for seven months. For the past six weeks she had noticed that her feet were swollen. The pain in the lower abdomen came on acutely while she was at rest and radiated to the back and the left iliac region. At the onset, the patient fainted. Later she became extremely thirsty and restless, and slept very little that night. The next morning, ten hours prior to her admission to the hospital, bleeding from the vagina, air hunger, and extreme thirst began.

On her admission to the hospital her general condition was very poor. She was cyanotic and gasping for breath, her tongue was dry and furred, and she had a violent headache. The temperature was 105 degrees F., the pulse 120 and of poor quality, and respiration 28. There was no jaundice. The general physical examination of the heart and lungs was negative. Abdominal examination revealed con-

siderable general soft distention with marked tenderness in the left lower quadrant. On pelvic examination the external genitals were found to have a purplish hue and there was moderate bleeding from the vagina. The uterus was somewhat enlarged and soft. The cervix was soft and showed a bilateral laceration. The cervical tug caused sharp pain in the region of the left broad ligament. No masses were felt in the region of the adnexa but the left side was extremely tender. The blood count showed white cells 28,000, polymorphonuclears, 80 per cent, hæmoglobin 70 per cent. The blood pressure was 105-70. On the right thigh was a large subcutaneous hæmorrhage.

A tentative diagnosis of ruptured ectopic gestation was made and a laparotomy performed immediately under gas and oxygen anæsthesia. The uterus was found to be enlarged but the tubes and ovaries were entirely normal. There was nothing in the abdomen to account for the localized tenderness and distention. The abdomen was therefore quickly closed.

The next day, October 13, 1921, the patient developed a very marked jaundice over her entire body. Her temperature was 101½ degrees F., and her pulse imperceptible. She remained in the state of delirium which set in immediately after the operation. Clinically her condition was more critical than the day previous and the diagnosis of toxæmia of pregnancy was made. The prognosis was very grave. The blood pressure was 105-70. The cervix was then dilated and the uterus emptied under gas and oxygen anæsthesia, and irrigated with salt solution. The pathologic report confirmed the diagnosis of pregnancy.

Chemical examination of the blood on that day showed urea 50 mgm., uric acid 3.3 mgm., creatinin 2.05 mgm., sugar 144 mgm., combining power of the blood plasma 40 vol. The icterus index was 187.

As the patient was unable to void, catheterization was necessary; 125 c.cm. of dark reddish urine were withdrawn. Examination showed this urine to contain blood, many epithelial cells, numerous hyaline and granular casts, and bile.

The next day the jaundice was less marked and the urine less highly colored. The temperature was 100.5 degrees F., and the pulse 100. The patient complained of a salty taste in her mouth. There was no vomiting.

Clinically there was evidence of improvement but the laboratory findings showed that since the last examination all of the clinical elements of the blood had increased. Of particular importance as far as the outlook of the case was concerned was the increase in the creatinin content. There were only two findings which suggested the possibility of improvement: (1) the increase in the combining

power of the blood plasma from 40 to 50 volumes, and (2) a decrease in the icterus index from 187 to 100.

On October 16 the general condition was about the same. The temperature had dropped to 100 degrees F., but alternate delirium and coma still persisted. Complaint was made of considerable pain over the liver region and there was marked tenderness to palpation over this area. The jaundice was slightly more marked.

On October 18 the general condition, as far as could be determined clinically, was better. A careful examination of the urine revealed the presence of leucin and tyrosin. This, together with the presence of pain and tenderness in the right hypochondrium, vomiting, delirium, drowsiness, jaundice, and marked retention revealed by the blood examination, suggested toxæmia of pregnancy in which the liver destruction was very extensive. The extreme rarity of recovery from this condition and the fact that the patient eventually recovered and is still alive makes it still more difficult to establish definitely the underlying pathology in this instance.

The general treatment consisted in the administration of large doses of alkalis by mouth and by rectum, rectal irrigations, and the administration of glucose solution by Murphy drip, and of general sustaining medication and sedatives. When the patient was able to swallow, water was pushed to the limit of tolerance. By November 7, twenty-five days after the operation for the removal of the fetus, the patient was out of bed, but the jaundice had not entirely disappeared. The temperature and pulse were normal. The urine still contained albumin 2+, but no casts. The total amount of urine passed in twenty-four hours was 1,950 c.cm. The blood chemistry was normal.

The laboratory findings show strikingly that at the onset there was a retention of all the nitrogenous products. The most marked was that of the urea; the next most marked, that of uric acid; and least marked, that of creatinin. E. L. CORNELL, M.D.

Peterson, R.: Toxæmias of Pregnancy, Including Pre-Eclampsia, Eclampsia, and Nephritis: The Indications for, and the Methods of, Artificial Interruption of Pregnancy. *J. Michigan State M. Soc.*, 1923, xxi, 144.

Nephritis. Acute nephritis is a rare complication of pregnancy. Whatever its cause—exposure to cold, poisoning, or a contagious disease,—the patient should be treated conservatively in bed and tided over the acute disease if possible.

If appropriate medical treatment is of no avail, however, and the nephritis is becoming progressively worse as shown by increasing albumin and casts in the urine, anasarca, heart involvement, high blood pressure, etc., the uterus must be emptied by the method causing the least shock.

Chronic nephritis. The determining factors to be considered in arriving at a decision for or against the

artificial interruption of pregnancy are the severity of the kidney lesion at the time of the occurrence of pregnancy and the progress of the disease under treatment.

When the woman is tided over to the period of the child's viability, the pregnancy must be interrupted at the earliest period compatible with viability because the danger of interference with placental circulation resulting in separation of the placenta, fetal death, and grave menace to the life of the mother becomes increasingly greater as term is approached.

Eclampsia. Eclamptic seizures are due to poisoning brought on by the presence of the living fetus within the uterus. So long as the fetus remains in the uterus, toxins will be formed unless the process can be combated by medical treatment. If the fetus can be removed without too great trauma and the poison eliminated, the patient will recover. If the patient is overwhelmed by the eclamptic poison she will die, whether the treatment be medicinal or operative or both.

Pre-eclampsia. This is a condition in which laboratory and clinical tests show an intoxication which bids fair to end in convulsions unless it can be remedied.

When, in spite of treatment, the albumin and casts in the urine and the blood urea increase, when the blood pressure rises, and when the anasarca, headache, and eye symptoms become more pronounced, the author does not hesitate to empty the uterus and he has never regretted such active treatment.

Methods of artificially interrupting pregnancy in the toxæmias. If it is decided to empty the uterus to save the life of the mother before the age of viability of the fetus, the method chosen should be the one which will cause the least shock to the patient, whose condition is already poor because of the toxicity brought about or augmented by the pregnancy. Before the second or third month, cervical dilatation and curettage will usually prove satisfactory as the products of conception can be removed by this method quickly and thoroughly. When the cervix is rigid, an anterior hysterotomy should be done instead of prolonging the operation in an attempt to dilate. The author has found that short ether anæsthesia is well tolerated.

It must be borne in mind that any operative procedures upon a patient profoundly poisoned as the result of non-elimination may be followed by sepsis. Therefore more than ordinary care must be taken to obtain asepsis.

In the second half of pregnancy the type of operation selected for emptying the uterus will depend upon a number of factors, maternal and fetal.

In the case of a multipara with an easily dilatable cervix, manual dilatation terminated by version or forceps may be indicated. In the case of a primipara, better results will follow abdominal or vaginal hysterotomy. It must be borne in mind that the toxin is apt to have a serious effect on the fetus, and that therefore prolonged manipulation from below

may cause its death when it might be saved by extraction by the abdominal route.

In the presence of convulsions, abdominal caesarean section is the operation of choice unless the birth canal is easily dilatable and extraction is easy. It is the only procedure if eclampsia is complicated by contracted pelvis. If it were performed more often, before or soon after the first eclamptic convulsion, it would save a greater number of mothers and babies than any other method.

In conclusion the author states that each case must be judged by itself, consideration being taken of the degree of intoxication, the condition of the birth canal, and the size and condition of the child. If the child can be saved by a certain type of operation without prejudice to the mother, this should be the operation of choice. CARL H. DAVIS, M.D.

LABOR AND ITS COMPLICATIONS

Harrar, J. A.: Functional Dystocia in Normal Pelves: Recognition and Management. *Am. J. Obst. & Gynec.*, 1923, v, 246.

As it is impossible to define prolonged labor in units of time in an individual confinement, it is better to pronounce a labor prolonged or delayed under the following conditions:

1. When there is primary inertia with ruptured membranes.

2. When, despite good contractions, there is no advance in the cervical dilatation or progress of the presenting part.

3. When there is advance with increasing malposition.

4. When, due to the causes cited, increasing tonic spasm of the uterus develops with continued ascent of Bandl's contraction ring.

5. When the mother or the child shows signs of exhaustion.

If there are severe pains with rigidity of the cervix in the first stage, the use of morphine and scopolamine is frequently efficacious in controlling the mother's suffering and preventing nervous exhaustion while the cervix dilates. A constant observation in the use of scopolamine for twilight sleep was the slight uterine effort required to effect smooth and rapid dilatation of the cervix. When the membranes are intact and dilatation is slow, freeing of the membranes for several inches around the os will keep the case under control much better than their rupture, and should be given a trial first, but in the cases of multiparæ simple rupture admitting three to four fingers and good effacement of the cervix will often be followed by prompt delivery.

When there is primary inertia with ruptured membranes and the cervix will admit only one or two fingers and is not effaced, packing of the cervix and upper vagina with gauze is usually of greater aid in softening the cervix and inducing good pains than the use of a bag.

Manual dilatation is safely effected only in a cervix which is fairly well effaced, and even under

these circumstances there is danger of tearing and hemorrhage unless merely a remaining rim must be reamed out.

If delivery is imperative, and the cervix is effaced and dilated to admit three or four fingers but still too rigid to dilate manually without tearing, snipping with the scissors on either side is of great aid before the use of forceps, and is especially to be thought of when the aftercoming head catches in the cervix.

When dilatation of the lower soft-tissue funnel, the levator ani margin, and the urogenital septum becomes necessary, the author is inclined to prefer manual dilatation with plenty of lubricant and the repair of such small lacerations as may be superimposed. Episiotomy he restricts to cases in which tearing into the rectal sphincter is imminent, or the child must be instantly delivered.

Pituitrin should not be employed before delivery, but is frequently indicated for the control of postpartum bleeding before the ergot can exert its full effect.

When the child's head is at or above the brim, the author prefers version to the use of high forceps. Potter has laid emphasis on the combined advantages of certain manœuvres in podalic version and breech extractions; the details are not new, but the combination results in an excellent delivery. Version competes with high and hard median forceps, but the author is not yet prepared to admit that it competes with low median forceps or in any way with spontaneous delivery.

The most frequent and most commonly unrecognized cause of delayed labor in cases of normal pelvis is failure of rotation with persistently posterior position of the occiput.

Of 8,360 cases of recognized posterior occiput, only 433 (5 per cent) required artificial delivery.

In delay due to posterior occiput interference is warranted when there is no advance despite good contractions, and when, with advancement, there is an increasing extension of the head. In such cases the methods of choice are version with the head above the midpelvis or manual rotation and forceps extraction with the head below the midpelvis. Molding of the head through the brim is not a contra-indication to version if the uterus relaxes sufficiently under complete anaesthesia to admit readily the passage of the hand and wrist through the retraction ring.

Complete Scanzoni rotation of the posterior occiput with the forceps is a dangerous procedure in most hands.

There is undoubtedly a definite field for caesarean section in cases in which the baby is over-sized, in cases of prolapse of the cord and long, poor dilation of the cervix, in cases of non-engagement in which there is a tonic uterus and a live baby, and in cases in which a previous stillbirth resulted from dystocia although the relationship of the child and pelvis was considered normal.

E. L. CORNELL, M.D.

Harper, P. T.: Clinical Aspects of Blood Loss in Labor. *Am. J. Obst. & Gynec.*, 1923, v, 233.

The practice of measuring physiologic loss in ounces has little to commend it. If the limit is low, for instance from 4 to 6 oz., every large woman delivered of a 9- or 10-lb. child and losing from 8 to 10 oz. of blood within a few minutes would suffer from postpartum hæmorrhage. As a matter of fact, however, the blood lost represents efficiency on the part of the uterus in establishing hæmostasis at a large placental site. On the other hand, if the limit is placed a few ounces higher, a slender, undernourished, and anæmic woman losing 6 to 8 oz. would be considered as having no more than a physiological loss when, in terms of her ability to stand it, she has had a mild hæmorrhage.

With the exception of minor perineal injuries, postpartum hæmorrhage is the most frequent complication of parturition. The readiness with which this view will be accepted depends altogether upon the reader's conception of physiological blood loss. In the author's opinion, physiological blood loss is exceeded and hæmorrhage obtains when any unnecessary loss is sustained, regardless of amount.

The hæmorrhage is external when blood flows from the uterus or leaves it in clots, and concealed when there is a progressive increase in the size of the postpartum uterus. The one indicates an unphysiological blood loss as definitely as the other.

Because so many cases of hæmorrhage are due to muscular insufficiency and because the latter condition is so often preventable, the prophylactic treatment outweighs the active treatment.

Prevention should be begun hours before a possible blood loss occurs. This should consist in: (1) saving the patient's general strength by keeping her in bed while active labor is in progress; (2) preventing premature and ineffective efforts at bearing down; (3) artificial rupture of the membranes when dilatation is quite complete and advance is impossible because the bag of waters does not rupture spontaneously; (4) limiting the time that frequent propulsive second-stage contractions are allowed to continue with little or no promise of eventual spontaneous delivery; (5) terminating labor at a time when efficient contractions can be supplemented by traction from below; and (6) removing the contents of a distended bladder or rectum which may reflexly inhibit satisfactory uterine action at the time it is needed. These measures are urged in order that at the end of the third stage the uterus will not be exhausted.

Unquestionably, the convalescence would be more satisfactory in many cases if expulsive efforts were supplemented by judicious efforts at traction as soon as it is evident that the uterus has done its best. A well-defined caput and satisfactory molding show that the uterus has been efficient, while failure of progressive advance proves it unequal to the effort necessary for delivery. Conservation calls for the preservation of all possible muscular energy for the postpartum period, and little if any will be

available if the uterus is allowed to continue its ineffectual expulsive efforts too long.

To the extent to which the postpartum uterus is muscularly insufficient, it will fail to respond to stimulation. Further, it must be borne in mind that stimulation of a tired uterus does no more than excite it to increased efforts which it cannot maintain, and that when the latter wear off, the degree of insufficiency is increased. Pituitary extract and ergot draw from, rather than add to, the store of muscular energy. They are valuable aids in the treatment of hæmorrhage but they may not be depended upon as curative.

When efforts at stimulation have failed to excite the uterus to activity, it is apparent that the organ is unable to respond and that further administration of drugs or the application of measures depending upon latent muscular efficiency to accomplish results are contra-indicated. Under such circumstances firm intra-uterine tamponade is necessary.

E. L. CORNELL, M.D.

NEWBORN

Still, G. F.: Attacks of Arrested Respiration in the Newborn. *Lancet*, 1923, cciv, 431.

The author describes a typical case as follows:

The subject is an infant a few hours or weeks old who has given no cause for anxiety. The labor perhaps was normal, there was no asphyxia at birth, and all seems to be progressing well, when the child is found leaden-colored or pale, having entirely ceased to breathe. Artificial respiration starts breathing again, and by the time the physician arrives the infant is lying placidly, shows a good color, and is breathing normally. In a few hours, however, it is again found in the abnormal condition described and only by prompt artificial respiration is life saved again. This is repeated for a day or two, and then probably in one of the attacks breathing cannot be restored and the infant dies.

In the five cases observed by Still the age at which the attacks began was respectively about 16 hours, 26¾ hours, 5 days, 4 weeks, and 4 weeks and 5 days.

Infants with these attacks are not necessarily feeble or poorly nourished. The infant which had them first when it was 26¾ hours old weighed 9 lbs. at birth, and the infant which had them first when 4 weeks and 5 days old weighed only 5¼ lbs. at birth and 8 lbs. when the attacks began. Asphyxia at birth is certainly not a necessary antecedent.

The prognosis seems to be very unfavorable; only one of the author's five patients recovered. The infant's appearance in the intervals between the attacks is deceptive. The sudden and absolutely silent onset of the attacks must be borne in mind. It is essential that the infant be watched closely night and day until the attacks have been entirely absent for some time. At any moment, artificial respiration may be the only hope of saving life, and the nurse or mother must be instructed accordingly.

EDWARD L. CORNELL, M.D.

GENITO-URINARY SURGERY

ADRENAL, KIDNEY, AND URETER

Deaderick, W. H.: Syphilis of the Adrenals. *Am. J. Syphilis*, 1923, vii, 72.

Luetic lesions of the adrenals in congenital syphilis are not rare and in recent years have been frequently found at autopsy in cases of acquired syphilis. The marked asthenia sometimes observed in the course of syphilis has been attributed to luetic invasion of these glands. It is possible that the benefits derived from the use of adrenalin in the treatment of reactions following the injection of salvarsan indicate the presence of such lesions which are unsuspected.

Syphilis of the adrenals was recognized pathologically, especially in hereditary syphilis, before any clinical cases were reported. Lancereaux and Virchow found an increase in the size of the adrenals in this condition. Baerensprung found these structures invaded by masses of nuclei and young connective-tissue cells. In 1869, Virchow and Hecker described gummata of these structures. According to Baerensprung and Huber, the suprarenal capsules are considerably swollen, hyperæmic, and beset with small white granules or miliary spots the size of poppy seeds which traverse the cortical substance in the form of radiating striæ. These masses are composed of nuclei and young cells. Ribadeau-Dumas and Pater studied the suprarenals in twenty cases of hereditary syphilis and found them affected relatively frequently. The conditions included simple hyperæmia, congestion with infective nodules, sclerosis, atrophic and sometimes cellular changes, simple sclerosis, gummata, and sclerogummatous degeneration. The treponema was very frequently discovered in these structures. Marshall and French state that evidence of inherited syphilis has been found in cases of infantilism, dwarfism, gigantism, myxœdema, acromegaly, exophthalmic goiter, and Addison's disease, and cases have been reported in which these conditions were benefited by antiluetic treatment. The adrenals are enlarged also in acquired syphilis of the visceral type.

Another striking characteristic of the adrenals in chronic syphilis is marked lipoidosis of the cortex which is found in many cases. This may be patchy or involve the entire cortex. Lespinasse says that amyloid degeneration of the adrenals is not uncommon. In congenital syphilis involving the parenchyma the spirochæta pallida is present in large numbers. Eichorst states that at other times tuberculosis or carcinoma in other organs, antecedent syphilis, suppuration, or other wasting discharge may suggest that the adrenal bodies are involved by tuberculosis, carcinoma, gumma, or amyloid degeneration with consequent development of Addison's disease. According to Reisman, Addison's disease

is usually due to tuberculosis of the adrenal glands, and in rare instances to syphilis, fibrosis, or tumor.

Abstracts are given of the histories of eleven cases showing the Addison syndrome in close relationship to syphilis, but with a decided lack of uniformly favorable results following antiluetic treatment.

C. D. HOLMES, M.D.

Ziegler: Experiences in Pneumoroentgenography of the Renal Bed by Rosenstein's Method (Erfahrungen mit der Pneumoroentgenographie des Nierenlagers nach Rosenstein). *Fortschr. a. d. Geb. d. Roentgenstrahlen*, 1922, xxx, 56.

In the method described, the point of the needle lies within the fatty capsule between the posterior surface of the kidney and Zuckerkandl's fascia, and the oxygen is allowed to spread only within the fatty capsule. As a rule, 300 to 400 c.cm. will be found sufficient. The use of a modified Brauer pneumothorax apparatus is preferable to inflation with a syringe. When the position of the needle is correct, the gas will distribute itself in a median and a lateral direction from the kidney simultaneously.

This procedure makes it possible to see the kidney as easily as the heart. Its entire surface may be studied, and on oblique transillumination any changes in its anterior or posterior surface are clearly revealed. The stereoscopic exposure affords a wonderful view of the relation of the kidney to its surroundings. In contrast to pyelography, the method gives information regarding the renal parenchyma. The fact that obliteration of the fatty capsule makes it impossible to surround the kidney with gas may be of value in the diagnosis of conditions formerly recognized with difficulty. GRAUHAN (Z).

Neuwirt, K.: The Treatment of Reflex Anuria (Ein Beitrag zur Therapie der Reflexanurie). *Ztschr. f. urol. Chir.*, 1922, xi, 75.

This article is begun by observations on the innervation of the kidney by the sympathetic and vagus nerves. Only in recent times has any emphasis been laid upon the secretory influence of the nerves upon renal function, an influence demonstrated by the fact that every cell of the renal tubules is surrounded by a delicate network of nerve fibers. The vasomotor fibers originate from the splanchnic nerve; section is followed by polyuria due to paralysis of the vasoconstrictors, and stimulation results in constriction of the blood vessels and oliguria.

At the present time, the vagus is recognized as a nerve promoting secretion and an antagonist of the splanchnic nerve which inhibits secretion, but the activity of the nervous system is evidently that of a delicate regulator as the denervated or reinnervated kidney continues to function for a long time.

The reflex influences to which the renal function is subject are numerous. Excretion is decreased by cooling of the skin and irritation of the sciatic nerve or ureter. The incarceration of a stone, the kinking or compression of a ureter, and ligation or the pressure of a tampon upon the nerve plexus of the hilus after nephrectomy may produce reflex anuria or oliguria on the other side through a reflex spasm of the renal arteries. The path of this reflex should be sought in the splanchnic nerve, and the transference from one side to the other in the individual segments of the spinal cord.

Neuwirt attempted to determine the effect of the splanchnic nerve upon the renal function in man by anesthetizing its fibers. Theoretically this may be achieved by lumbar anesthesia, paravertebral root anesthesia, or splanchnic anesthesia according to the method of Kappis. Neuwirt used the Kappis method in a case of diabetes insipidus and found that the kidney on the side anesthetized excreted one-half again as much urine than the kidney on the other side.

As reflex anuria and oliguria are produced by spasm of the renal vessels and reflex stimulation of the vasomotor nerves of the kidney, and these impulses are carried only by the splanchnic nerve, reflex anuria cannot develop and the stimulus conducted in a central direction from the kidney cannot reach the spinal cord if the course of the vasomotors is interrupted by splanchnic anesthesia. Consequently, the inhibitory effect upon the renal function must disappear and the kidney must begin excretion following such interruption of the nerve.

The author tested this theory in a case of reflex oliguria. Ten minutes after anesthetization of both splanchnic nerves with 30 c.cm. of a 1 per cent novocaine-adrenalin solution the severe colicky pains were greatly relieved, and after an additional five minutes had ceased entirely. The amount of urine, which had reached 330 c.cm. during the previous twenty-four hours, rose to 2,255 c.cm. in the next fourteen hours. This attack had lasted for one and one-half days and was produced by the incarceration of a stone. Two months later two concretions were passed during another attack.

In order to make sure of the effect, a bilateral anesthetization was done because the diagnosis was not absolutely certain; theoretically, unilateral anesthesia would have been sufficient.

Additional observations and experiments must determine whether splanchnic anesthesia is an important means of treating nephrolithiasis and whether improvement of the diuresis is to be expected in reflex oliguria or anuria. JANSSEN (Z).

VanderHoof, D., and Haskell, C. C.: The Relation of Acidosis to Nitrogen Retention in Experimental Nephritis. *South. M. J.*, 1923, xvi, 170.

Previous experiments upon dogs poisoned by methyl alcohol showed that while there was frequently a reduction in the alkali reserve of the blood, the degree of acidosis and the severity of the intoxi-

cation did not always vary in the same direction. In certain instances of severe or fatal poisoning the alkali reserve was found to remain at a high normal level to within a very short time before the death of the animal. In other cases a marked reduction in the alkali reserve was unaccompanied by evidence of severe intoxication and the animal subsequently recovered.

In experiments with mercuric chloride poisoning it was apparent that although there is a reduction of the alkali reserve, it is relatively insignificant in comparison with the increase in the non-protein nitrogen of the blood. It is well recognized that considerable damage to the renal structures may be present without leading to an appreciable retention of the nitrogen in the blood; that is, the increase in the blood nitrogen occurs relatively late, some time after the initial anatomical changes in the kidneys.

The results obtained by the authors seem to indicate that, in some cases at least, the acidosis is not responsible for the severity of the intoxication by methyl alcohol or mercuric chloride. Not only is the reduction of the alkali reserve relatively slight in the beginning, but evidence of renal damage may be obtained before there is any decrease at all in the alkali reserve. And when the reserve alkali is kept at a high level by the intravenous injection of sodium bicarbonate, little effect seems to be exerted on the course of the poisoning and the impairment of renal function. Finally, a reduction of the alkali reserve through starvation and the administration of dilute hydrochloric acid, though fully as great as that seen early in the course of poisoning by mercuric chloride, does not lead to a retention of nitrogen such as occurs in the latter condition.

The authors believe that in certain cases of mercuric chloride poisoning, sodium bicarbonate therapy is useless and that unless great care is exercised in the intravenous injection serious damage or even death may ensue. The administration of alkali in supposed cases of acidosis should be resorted to only when it has been definitely shown that there is a reduction of the reserve alkali of the plasma, and even then, oral or rectal administration should be preferred to the intravenous injection of the solution.

SAMUEL KAHN, M.D.

Nieden, H.: Tuberculosis of the Kidney and Nephrectomy (Nierentuberkulose und Nephrektomie). *Ztschr. f. urol. Chir.*, 1922, x, 230.

The question of the tuberculin treatment of tuberculosis of the kidney, which heretofore appeared indicated only in pronounced general tuberculosis with an associated urogenital tuberculosis, in weak function of the other kidney, and in the after-treatment of tuberculosis of the bladder following nephrectomy, has again been raised. The renewed recommendation of conservative treatment stimulated an investigation of renal tuberculosis at the Jena Clinic from 1910 to 1920, with regard to the value of functional diagnosis and postoperative

results. Conservative treatment instead of operative treatment is justified in cases of unilateral disease provided it is possible constantly to determine the retrogression or advance of the condition. The bladder findings are not a reliable indication of the extent of renal disease but are decisive in indicating conservative treatment.

With regard to the value of functional tests the author states that in many cases ureteral catheterization was impossible because of bladder changes, and distortions of the bladder prevent the certain observation of the excretion of dyes. Therefore an accurate estimation of function was impossible. Although testing with dyes was of aid in the majority of cases, and particularly in tuberculosis of the kidney, Nieden also observed cases in which it failed completely, periods of normal excretion occurring when the kidneys were severely damaged, as shown by autopsy. Moreover, even in undoubtedly functioning kidneys there may be no delay or considerable delay in the excretion of dyes and sugar. This is true particularly in cases of tumor.

Wossidlo favors conservative treatment for cases of tuberculosis of the kidney which are diagnosed by catheterization of the ureters, the finding of bacilli, and the presence of pyelographic changes in the ureter and the renal pelvis. As borderline cases he regards those in which the delay in the excretion of dyes is twice that of the normal side. He believes that if this does not improve in two to three months, nephrectomy is indicated. In the author's opinion, the excretion of dyes is not of such great significance; moreover, the danger to the second kidney during the two or three months of waiting is not to be disregarded.

With regard to the end-results in cases of operatively treated tuberculosis of the kidney, Nieden reports on twenty-two cases of unilateral disease and one case of bilateral involvement; four of the former are excluded from the discussion because of other conditions. Of the remaining nineteen patients, seven are dead, and of the twelve others, several have survived the operation for nine years.

In only two of the unilateral cases was the disease in the early stages; the rest showed advanced changes. The immediate mortality (within two months) included fourteen deaths: two from uræmia, one from suppurative peritonitis, and one from general infection. One of the cases of uræmia was the case of bilateral disease. In the other the remaining kidney showed fatty degeneration without tuberculosis.

In two cases in which death occurred some time after operation (eleven and twenty-three months, respectively) the cause of death could not be determined. In nine cases, the ultimate results were determined by subsequent examinations (on an average, after four and one-half years). In all, there was considerable improvement in the general condition, but in two cystitis was found. Nieden sutures the stump of the ureter (the most frequent cause of persistence of a fistula), according to the method of

Kuemmell, in an opening separate from the operative wound, so that it can be treated secondarily. In five cases the bladder symptoms completely ceased but in these there was no ulcer formation in the bladder before the operation; of the remaining four cases, in which bladder symptoms were present, two showed no bladder changes previous to the operation. Therefore in three cases disturbances in the course of healing could be attributed to the stump of the ureter.

The question as to whether conservative measures other than tuberculin treatment—such, for example, as sun and light treatment (Kisch)—offer a better prognosis, the author leaves unanswered. Recently Harrass has reported that tuberculosis of the kidney and testicle do not respond to heliotherapy.

JENSSEN (Z).

Muller, G. P.: Abnormality of the Kidney Pelvis with Pyonephrosis. *Surg. Clin. N. Am.*, 1923, iii, 129.

Muller reports a very unusual case of joined pelves. Following nephrostomy and nephrectomy of the right kidney a persistent fistula developed with intermittent discharge of urine. One year later the patient died. Autopsy showed the pelvis of the left kidney to be full of pus-containing urine and to extend behind the aorta and vena cava to the right side, where it communicated with the fistula.

Pyelograms would have cleared up the diagnosis previous to operation, but the patient refused extensive cystoscopic investigation.

The diagnosis was pyonephrosis on the left side with communicating renal pelvises.

C. D. PICKRELL, M.D.

Grauhan, M.: The Anatomy and Clinical Aspect of Epithelial Neoplasms of the Renal Pelvis (Zur Anatomie und Klinik der epithelialen Neubildungen des Nierenbeckens). *Deutsche Ztschr. f. Chir.*, 1922, clxxiv, 152.

Epithelial tumors of the renal pelvis show a papillary structure. As a rule they are multiple. The author defines these tumors as growth degenerations of the epithelium of the efferent urinary passages which develop in predisposed tissue as the result of chronic irritation. A peculiar characteristic of the epithelial neoplasms of the renal pelvis is their tendency to extend to the ureter and bladder, following the urinary stream. The tumor formations in the ureter and the bladder are frequently unlike the primary tumors of the renal pelvis.

The secondary tumor formations in the ureter and bladder may be due to implantation metastasis, a multilocular origin, growth by continuity and dissemination along the lymph tract, or retrograde transportation. The solid and pavement-cell epithelial cancers spread by continuity from the renal pelvis to the ureter, but only the uppermost portion of the ureter is affected. The simultaneous affection of the lower portion of the ureter and the bladder is more characteristic of papillomata.

The renal parenchyma presents the picture of a hydronephrotic contracted kidney. The peculiarities of the clinical picture of tumors of the renal pelvis are shrinkage in the volume of the kidney demonstrable by palpation, hydronephrosis with marked and frequent hæmaturia, papillary tumors in the vicinity of a ureteral ostium, the presence of villi in the urine of the ureters or bladder, and the pyelographic demonstration of a filling defect in a cystic kidney. As a rule, epithelial tumors of the renal pelvis do not produce metastases by way of the blood and lymph streams.

Nephrectomy must always be supplemented by ureterectomy.

Four of the author's cases are reported.

FRANGENHEIM (Z).

Handley, W. S.: On Subcapsular Pyelotomy, with Remarks on the Origin and Treatment of Renal Calculi. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Surg., 21.

After a brief discussion of the probability of occasional calculus formation in cysts in the renal cortex, the author proceeds to a critical survey of the different methods of removing stones from the kidney. He then describes in detail the operation of subcapsular pyelotomy as he performs it. His method differs from the ordinary pyelotomy in that a flap of capsule is dissected up toward the pelvis and beneath it entrance is gained to the cavity of the pelvis through an incision in the wall. Closure is effected by interrupted stitches in the divided capsule on the posterior renal surface. When necessary, bi-digital exploration of the kidney can be made with one finger in the pelvis. Extrusion of calyx calculi through the renal cortex is also possible.

The operation described was performed in eleven cases without the formation of fistula or other serious complications. In view of this fact and on account of the free access afforded, the author recommends it as the preferable procedure in the removal of kidney stones.

The article is well illustrated and is supplemented by three selected case records.

JOHN G. CHEETHAM, M.D.

Liebmann, M.: The Diagnosis of Malignant Tumors of the Kidney (Zur Diagnostik der malignen Nierentumoren). *Ztschr. f. Urol.*, 1922, xvi, 347.

Malignant tumors of the kidney occur most frequently in the first year and the fourth and fifth decades of life. From the practical standpoint it is sufficient to differentiate between hypernephroma, carcinoma, sarcoma, and malignant embryonic nephroma. Hypernephromata constitute 60 to 70 per cent of the growths. The pain usually begins early. The hæmorrhage is very irregular and occurs more rarely in children than in adults; the first early hæmorrhage is due to vascular erosion by the young neoplasm and the later hæmorrhage to necrosis of the tumor.

Although tumor formation is the most certain

sign in the diagnosis, it is not demonstrable until late. The symptoms of congestion are produced by the growth of plugs of tumor tissue into the vein or the pressure of metastases upon the lymph and blood channels. Symptomatic varicocele belongs to this group of symptoms. The most interesting metastases are those of hypernephroma, namely those found in the bones. These are usually more malignant than the primary tumor, but as they remain single for a long time, they do not contra-indicate operation.

In discussing the diagnosis the author adheres to the Rovsing classification of cases of malignant renal tumor:

Group 1. Cases with tumor and hæmaturia. In these the diagnosis is easy but the condition is usually well advanced. As functional tests are of little avail unless a considerable amount of parenchyma has been destroyed, pyelography, pneumoperitoneum and pneumoradiography of the renal pelvis are of great importance.

Group 2. Cases with a palpable tumor but without hæmaturia. As a rule the relationship of the tumor to the kidney may be determined by the methods mentioned, but in some cases exploratory operation may be necessary.

Group 3. Cases with hæmaturia but without tumor. These are the most difficult to diagnose. If palpation fails, the kidney must be exposed and, possibly, must be split.

Regarding the nature of the tumor the author states that, because of their metastasis by way of the lymph passages, carcinomata frequently cause symptoms of congestion. Hypernephromata metastasize by way of the blood stream.

Large size of the tumor does not contra-indicate operation, but firm adhesions to the surroundings prevent a successful operation.

In the treatment, only nephrectomy comes up for consideration. The postoperative mortality the author gives as 10 per cent. Unfortunately, recurrences and metastases are the rule. In cases of hypernephroma which has not perforated into the large blood vessels or through the capsule of the kidney the prognosis following operation is favorable, provided the tumor does not show a particularly malignant histologic structure. Nephrectomy is of value also as a palliative measure as the patient usually improves for a time in spite of the development of recurrences and metastases.

The author gives in tabular form operative and final results obtained at the Frankfurt clinic.

JANSEN (Z).

Price, H. T.: Urinary Calculi and Sarcoma of the Kidney in Children. *Pennsylvania M. J.*, 1923, xxvi, 355.

The author states that in the diagnosis of the ailments of children not sufficient attention is paid to the genito-urinary tract. The urine of newborn babies may contain crystals, and during the first year of a child's life an attack of colic may be caused

by the passage of sand in the urinary tract. The author cites eleven cases of stones in the bladder or kidneys of young children.

The mortality from sarcoma of the kidney in children is high. Of five children with this condition who were seen by the author, only one survived operation for a few months. The following conclusions are drawn:

The prevention or cure of pathological conditions of the genito-urinary tract has not proved as successful as desired.

Calculi should be discovered early after their formation in order to prevent serious suffering or death.

The fact that calculi may quickly form again should be borne in mind. In some cases this is the rule.

The early cure or removal of the source of infection of the urinary tract is sometimes impossible. The X-ray is the most valuable aid in the diagnosis of calculi.

Cystoscopic examination was made in a few of these cases but the diagnosis was made before this assistance was obtained.

In four cases of sarcoma in girls no definite etiological factor could be determined. The only sarcoma occurring in a boy was probably of traumatic origin.

JAMES A. H. MAGOUN, M.D.

BLADDER, URETHRA, AND PENIS

Crompton, C. R. B.: Partial Spontaneous Inversion of a Diverticulum of the Bladder with Dumb-Bell Stone. *J. Urol.*, 1923, ix, 283.

A case of partial spontaneous inversion of a diverticulum of the bladder with the coincident occurrence of a dumb-bell stone is reported. The patient had passed multiple renal stones and complained of constant pain in the perineum which became more intense after jolting or shaking and was accompanied by frequency of micturition. Cystoscopic examination revealed a bladder stone fixed to a tumor mass which was raised from the bladder wall. On exploration of the bladder the tumor mass proved to be a small diverticulum almost completely inverted into the bladder cavity and covered with extensive hypertrophic granulation tissue. A nodular, pyramidal-shaped stone was found in a sacculatation at the apex of the inverted diverticulum. The inverted diverticulum, which was 3 cm. in diameter, was dissected from the wall with scissors.

Twenty-eight cases of coincident bladder stone and diverticulum have been treated at the Mayo Clinic. In a review of the literature the author was able to find only five cases of dumb-bell stone.

Hepburn, T. N.: Obstruction at the Uterovesical Valve. *Surg., Gynec. & Obst.*, 1923, xxxvi, 368.

The author discusses in a general way the etiology, treatment, and prognosis of obstruction at the uterovesical valve, gives abstracts of five cases, and includes in his article pyelo-ureterograms showing the condition.

This obstruction of the ureter may be due to spasm of its own circular fibers at its mouth or of those of the bladder wall. Every cystoscopist has noted that at times the ureteral os may contract to a pale dimpled knob which cannot be catheterized. Again he has noted that the catheter may pass the os but is clamped in the intramural portion by a spasm of the bladder. When one ureter has been catheterized before the bladder spasm occurs it may be impossible to catheterize the other one, and when the attempt is made, with a catheter in the bladder, to determine the functional output from the non-catheterized side, it is found that there is no output of urine from this side. Often pain in such a ureter will suggest renal pathology requiring nephrectomy when the kidney is normal but is functioning into a ureter temporarily closed by spasm at its outlet.

Occasionally the so-called reno-renal reflex may be set up by a stone in the intramural portion of one ureter, the urine passing this without difficulty, but the other ureteral orifice in spasm causing renal distention and colic.

In certain cases of obstruction of the uterovesical valve there may be a congenitally strictured os which at times may be completely closed by the muscle surrounding it. In others, in which there is trabeculation of the bladder wall, a cordal lesion due to syphilis or other cause may be the etiological factor. The author believes the majority of the cases come under the heading of spasm due to fatigue or nervous exhaustion analogous to spasm of the lower end of the œsophagus, the pylorus, the ileocecal valve, or the anus. The attack may be precipitated by the passage of irritating urine, infection, small stones, or crystals.

During the acute pain, morphia and heat are necessary. Complete rest in bed is indicated until relaxation is established. If the spasm continues long enough to cause pyelitis, immediate suprapubic incision into the bladder should be done and both ureteral orifices dilated with sounds. If the ureters are widely dilated and pyelitis and marked parenchymal deficiency are found, complete destruction of the uterovesical valves is advisable. If the distention of the ureters is only moderate and if the urine is free from pus and the kidney function is good, the treatment should consist in cutting the muscles down to the mucosa, the sphincter being left intact.

In conclusion the author states that while the results of the operative procedures suggested are problematical, hydro-ureter, hydronephrosis, infection, stone formation, and destruction of renal parenchyma will develop if the obstruction continues.

C. D. HOLMES, M.D.

Hirst, J. C.: The Rapid Cure of Cystitis in Children. *N. York M. J. & Med. Rec.*, 1923, cxvii, 263.

The treatment advocated is described as follows:

1. The child is placed in the dorsal lithotomy position, and its knees are held apart by an assistant or nurse.

2. Occasionally anæsthesia will be necessary because of the child's unruliness, but not because of any pain caused by the manipulations. Light ether or chloroform anæsthesia is all that is necessary, and for a few seconds only.

3. A small soft rubber catheter is boiled and inserted into the bladder after proper preliminary cleansing of the vulva.

4. The urine in the bladder is allowed to flow out.

5. No irrigation of the bladder is necessary.

6. Through the catheter, by means of a piston syringe, 5 c.cm. of a 10 per cent of silvol or neosilvol solution are injected, the catheter being then quickly withdrawn.

7. In most cases the solution will be retained for fifteen minutes to several hours. The younger the child the shorter the retention. Even if the solution is passed at once, however, sufficient will remain.

In most cases the results are immediate. The tenesmus promptly ceases, the frequency of urination diminishes or ceases, and the child immediately becomes comfortable and quiet. If the symptoms recur or the urine does not promptly clear, the injection may be repeated. In the cases of girls of 6 or 7 with cystitis of long-standing and with occasional exacerbations, repeated injections are often necessary, but in the acute cases, especially if no time has been wasted on improper treatment, the results are prompt and satisfactory.

The age of the child has no bearing whatever on the practicability of the injections. The urethra of a female child is surprisingly distensible, as is well known, and no difficulty will be encountered. The author used the method without trouble in the case of an infant one month old.

C. R. O'CROWLEY, M.D.

Gorash: The Treatment of Tuberculosis of the Bladder (Behandlung der Blasentuberkulose). *Verhandl. d. Kong. Russ. Chir.*, Petrograd, 1922.

In Fledorow's clinic and in the author's private practice there has not been a single case of tuberculosis of the bladder without renal tuberculosis. Therefore the treatment was always directed chiefly toward the affected kidney. In 75 to 80 per cent of the cases, nephrectomy was followed by healing of the tuberculous process in the bladder. These were cases showing circumscribed tuberculous foci. The author designates this condition as "tuberculosis of the bladder," and diffuse tuberculous disease of the bladder as "tuberculous cystitis." In cases of tuberculous cystitis the bladder lesions do not heal spontaneously after nephrectomy and require supplementary local treatment. For the latter the author has successfully used high-frequency currents according to the method of Heitz-Boyer. If the bladder is large enough he applies the treatment within the bladder, but if it is not, he performs an epicystotomy and applies it to the opened bladder.

In the discussion on urogenital tuberculosis following this paper, Cholzoff claimed that in the rare

cases in which, after properly carried-out nephrectomy, the tuberculosis of the bladder does not disappear spontaneously, healing may be obtained by a wide cystotomy and placing the bladder completely at rest.

For the diagnosis of tuberculosis of the kidney, Petroff recommended the injection of 10 to 15 c.cm. of urine into the abdominal cavity of guinea-pigs (not subcutaneously) and necropsy after ten to twelve days. If the urine contained tubercle bacilli, the entire peritoneum and the spleen will be found covered with miliary tubercles. By this method the diagnosis may be made much more quickly than by the subcutaneous injection of the virus.

PETROFF (Z).

Zsigmond, F.: A Case of Hæmorrhagic Purpura of the Bladder (Ueber einen Fall von Purpura vesicæ hæmorrhagica). *Gyógyászat*, 1922, xlv, 618.

After reporting a characteristic case the author discusses the proper application of the term "purpura of the bladder." The disease to which it belongs is one in which hæmaturia occurs without any previous warning or after only a slight indisposition, a moderate rise in the temperature, and slight, if any, dysuria. With the exception of the blood and albumin, nothing pathologic is demonstrable in the urine. On cystoscopic examination, however, red to dark-brown hæmorrhagic spots are seen on the normal mucous membrane, which resemble the hæmorrhagic spots in the skin and mucous membrane in constitutional purpura or scurvy. The term "purpura of the bladder" can be applied properly only to those cases in which there is general involvement of the blood vessels (purpura hæmorrhagica, scurvy, etc.). For cases in which the inflammation of the bladder mucosa is responsible for the ecchymoses, the term "hæmorrhagic cystitis" should be used.

Early cystoscopic examination is of the greatest importance even when the hæmaturia is very slight.

The treatment is directed against the constitutional basic disease. Rest and a suitable diet are also indicated.

VON LOBMAYER (Z).

Smith, G. G.: The Treatment of Cancer of the Bladder by Radium Implantation. *J. Urol.*, 1923, ix, 217.

The implantation in bladder cancer of bare tubes of radium emanation of low potency or of radium-bearing needles of 5 mgm. each, will cause complete necrosis of the tumor, provided the tubes are inserted 1 cm. apart and so placed that the entire periphery of the growth is brought within reach of rays of lethal power.

Two classes of growths are suitable for this treatment: (1) small, single papillary carcinomata, into the bases of which bare emanation tubes may be deposited by intravesical methods, and (2) sessile carcinomata or the bases of large fungating growths destroyed with the cautery, into which radium may be implanted through a suprapubic cystotomy.

It is inadvisable to bring about the necrosis of a tumor more than 3 or 4 cm. in diameter, as the absorption of toxins from the infected slough is apt to prove fatal.

In treating cancer of the bladder by this method the problem is to use enough radium to destroy the cancer, but not enough to injure the patient.

A number of cases of cancer of the bladder in which the growth could not have been excised successfully have shown complete clinical disappearance of the growth following the implantation of radium.

C. R. O'CROWLEY, M.D.

Buerger, L.: A New Method of Applying Radium through the Cystoscope. *J. Urol.*, 1923, ix, 227.

The purpose of the method described is to obviate the necessity of leaving the cystoscope in position during the time of radium contact. The equipment needed consists of special radium needles and applicators for inserting them into the growth, which can be used through the author's operating cystoscope or a radium cystoscope.

The construction of the needles and applicators, the technique of introducing the needles into the growth, and the removal of the applicator and cystoscope are described and illustrated.

This method of applying radium is applicable to the treatment of carcinoma without surgery, treatment preliminary to surgery, and the treatment of metastasis.

HENRY L. SANFORD, M.D.

Corbus, B. C.: Diathermy in the Treatment of Tumors of the Lower Urinary Tract. *J. Urol.*, 1923, ix, 203.

In describing his technique the author states that diathermy is the application of thermic properties of bipolar currents of very high frequency and low tension (d'Arsonval current) as distinguished from the high-tension unipolar current of Oudin which carbonizes and lessens heat penetration.

The effect desired is a cooking-through of the tissue to be destroyed by deep penetration of the current with a comparatively low degree of heat. This produces an aseptic death, a sealing of vascular elements, and subsequent formation of scar tissue.

In heat coagulation of bladder tumors through a suprapubic opening the author introduces the electrode through a glass speculum and controls the degree of heat penetration by a thermometer in the rectum or vagina. The bladder is closed with Pezzet catheter drainage to allow reinspection and an opportunity for a second application of diathermy in case of recurrence.

H. L. SANFORD, M.D.

Petroff, N.: Resection of the Urethra with Mobilization and Suture in Cicatricial Strictures and Fistulae (Die Resektion der Harnroehre mit Mobilisierung und Naht bei Narbenstrikturen und Fisteln). *Arch. f. klin. Chir.*, 1922, cxxii, 1.

In every case of cicatricial stricture of the urethra in which the use of bougies is not sufficient, resection of the stricture followed by suture is preferable to

any plastic operation or free transplantation because of its certainty and simplicity.

In the years 1920 and 1921 the author operated on eleven cases with defects varying in length from 1.5 to 7 cm., and in one case with a defect 12 cm. long. The last patient, who was afflicted with multiple gonorrhoeal fistulae and suppuration, died from sepsis five days after the operation, but all the others were cured. In the cured cases, in which there was no after-treatment with bougies, a stricture (fold?) was demonstrable on subsequent examination with a bougie only once, but the patient was able to urinate without difficulty, and in the other cases the urethra remained patent. However, the author was able to follow his cases for only three or four months.

At operation, Petroff made a temporary suprapubic bladder fistula for the introduction of a metallic catheter by way of the bladder in searching for the stricture.

MARWEDEL (Z).

GENITAL ORGANS

Horn, W., and Orator, V.: Hypertrophy of the Prostate (Zur Frage der Prostatahypertrophie). *Ztschr. f. Path.*, 1922, xxviii, 340.

The authors attempted to determine whether hypertrophy of the prostate is a true tumor formation or a compensatory hypertrophy, and to discover the anatomical origin of the glandular nodules. For a clear understanding of the anatomy the following groups of glands are distinguished:

1. The mucous glands of the urethral mucosa.
2. The submucous or paraprostatic glands which extend to the muscular layer and fall into three groups: (1) the glandulae paraprostaticae superiores, or the group of Jores, which are embedded in the dorsal side of the urethra above the colliculus seminalis and at the fundus of the bladder, (2) the glandulae prostaticae mediales, which lie at the side of the colliculus seminalis, their ducts opening on the lateral wall of the urethra, and (3) the glandulae prostaticae inferiores, which are found directly above the urogenitale trigone in the ventral urethral wall.

3. The true prostatic glands, which lie external to the inner sphincter of the urethra, are surrounded by muscle fibers and are to be classified, according to their position in relation to the colliculus seminalis, into the prespermatic (cranial) and the retrospermatic (caudal) group.

With regard to true prostatic hypertrophy, in which two types may be distinguished—one with enlargement of the median lobe, and the other with enlargement of the lateral lobes—the authors state that on the basis of serial sections it has been demonstrated that the condition usually responsible is hypertrophy of the upper and middle groups of submucous paraprostatic glands mentioned. In certain cases, however, the prespermatic true prostatic glands may be concerned in enlargement of the middle lobe and the retrospermatic true prostatic glands in enlargement of the lateral lobes. A reliable

conclusion is possible, however, only in the early stages before secondary perforations of the limiting musculature have occurred.

Enlargement of the lower ventral group of paraprostatic glands is as yet unknown, but the authors believe such a condition is possible. Mention is made of Simmond's hypothesis that the nodules forming the basis of prostatic hypertrophy are caused by proliferation originated by a hormone from the testicle to replace atrophied prostatic tissue. In the authors' opinion, however, the adenoma nodules are tumorous proliferations. Their proposal to drop the term "prostatic hypertrophy" as misleading, and to use instead the term "adenoma of the paraprostatic glands" deserves attention.

BUDDE (Z).

Von Borza, J.: Adenoma of the Accessory Glands Suggesting Prostatic Hypertrophy (Unter dem Bilde der Prostatahypertrophie auftretende Adenome der akzessorischen Druesen). *Ztschr. f. urol. Chir.*, 1922, ii, 109.

In the normally developed adult the prostate weighs 15 to 22 gm., and consists half of gland tissue and half of muscular and connective tissue. Senile involution of the prostate sets in between the fiftieth and sixtieth years of age. At the same time an enlargement of the peri-urethral glands begins. The latter are of entodermal origin and develop from portions of the wolffian duct.

The prostate lies external to the sphincter and the accessory glands are within it. In the so-called hypertrophy of the prostate, it is never a matter of enlargement of the prostate itself, but always of tumor-like proliferation of these often extraordinarily enlarged or multiplied groups of glands. Such a group of glands removed at operation is seen to consist of a large number of individual nodules ranging in size from that of a pinhead to that of a bean or hazelnut. These can be separated by a blunt instrument and without the use of force. Each possesses a capsule. The prostate itself is compressed by this tumor and appears as its capsule. After the operation, when freed from pressure, it resumes its former position and size.

Because of these facts the author believes that the term "adenoma or fibro-adenoma of the accessory peri-urethral glands" should be substituted for the term "hypertrophy of the prostate."

WOHLMUTH (Z).

Marion: Epididymectomy in Genital Tuberculosis (De l'épididymectomie dans la tuberculose genitale). *Presse méd.*, Par., 1923, xxxi, 129.

The author urges the treatment of genital tuberculosis by epididymectomy. Citing ninety-five recent cases, he denies that in a large majority the testis is involved as well as the epididymis. In his series, only thirteen showed testicular involvement.

Epididymectomy is preferable to castration even when there are secondary infections and fistulæ.

The idea that surgical removal of the tuberculous lesions favors spreading of the disease is false. Long-continued medical treatment usually fails to effect a cure and often leads to involvement of contiguous organs or the formation of abscesses and fistulæ.

Epididymectomy is very simple. The technique used by the author is described briefly. Of twenty-five patients subjected to this operation, nineteen were cured.

KELLOGG SPEED, M.D.

Aronowitsch, G. D.: Anomalies in the Descent of the Testicles in the Weak-Minded (Ueber die Anomalien des Descensus testiculorum bei Schwachsinnigen). *Nautschnaja Medizina*, 1922, ix, 123.

To the physical stigmata of mental inferiority belong, among others, anomalies in the descent of the testicles, consisting in their retention or retarded descent. With regard to these anomalies Aronowitsch examined 285 pupils in various institutions for retarded mental development (idiots, imbeciles, etc.). The anomaly was found in 28.42 per cent. The incidence was greatest in children between 3 and 11 years of age, and lowest in those at the age of puberty. The author draws the following conclusions:

1. Retention of the testicles is a congenital anomaly of embryological origin which, in association with other morphological and functional disturbances, indicates a general arrest of development.
2. The anomaly is one of the most common in psychopathic children (28.42 per cent).
3. The condition may be unilateral or bilateral, and occasionally is associated with congenital hernia (5.96 per cent). It is found most frequently in the cases of serious retardation of psychic development which are characterized by numerous physical stigmata.
4. In many cases the retention is only temporary and the testicle will reach its proper position at puberty.
5. Retention of the testicle is of itself not a sign of hereditary taint or disturbance of psychic development.

BECK (Z).

MISCELLANEOUS

Braasch, W. F.: The Relation of the General Practitioner to the Urologist. *Minnesota Med.*, 1923, vi, 128.

The general practitioner has the advantage, which the urologist usually does not have, of observing the first symptoms of lesions of the urinary tract. The author outlines the significance of some of the common symptoms observed in surgical conditions in the urinary tract. One of the most common symptoms and a symptom of marked clinical importance is hæmaturia. Hæmaturia without bladder symptoms is usually of renal origin. Profuse hæmaturia of short duration without bladder symptoms is suggestive of renal neoplasm. If the bleeding is associated with bladder symptoms the condition may be either a transient infection, or, if persistent, due to

a neoplasm. With regard to urinary frequency the author states that there are three important types: that occurring in the young adult, that occurring in the male at the age of prostatic enlargement, and that occurring in the female. Persistent diurnal frequency and pyuria suggest renal tuberculosis. Frequency in the female may be due to a transient colon-bacillus infection. If it persists, further investigation should be made. Frequency caused by an obstructing prostate is often confused with cystitis, but the absence of residual urine and the variations in the character of the prostate on rectal palpation often indicate the correct diagnosis. Not infrequently, prostatic obstruction is due to an overlooked malignant enlargement. Rectal palpation should be routinely carried out in the cases of adult males with symptoms of disease of the urinary tract.

Colic due to ureteral stone is frequently diagnosed as appendicitis. In the absence of localized tendencies and a high leucocyte count a delay is justified in most cases until an examination of the urine and a roentgenogram of the urinary tract can be made.

Small renal stones not infrequently pass, but repeated colics or several days of constant pain make investigation of the urinary tract imperative. Under certain circumstances, acute urinary retention is more safely relieved by suprapubic drainage than by making a passage through the urethra with instruments.

It is evident that the early intelligent observation and advice of the general practitioner is of the greatest importance to the patient with disease involving the urinary tract, and that the early recognition of surgical conditions and coöperation with the urologist are large factors in recovery.

Keyser, L. D.: The Etiology of Urinary Lithiasis: An Experimental Study. *Arch. Surg.*, 1923, vi, 525.

The author endeavored to subject the commoner theories of calculus formation to laboratory experiment. Efforts to increase the visible crystalline content of the urine by the forced oral, intramuscular, and subcutaneous administration of calcium salts proved futile. The administration of oxalates caused a moderate oxaluria but no concrement formation, while the subcutaneous injection of normal butyl oxalate produced an intense oxaluria. A change in the form of the calcium oxalate crystals to a coalescent type and the consequent formation of calculi was noted in one instance in the series. Bits of tissue (muscle and fascia) placed in the renal pelvis to act as a nucleus became impregnated with lime salts only in the presence of infection. Under sterile conditions such impregnation did not take place.

The formation of calculi was studied also by feeding diamino-oxalic acid (oxamid) to rabbits after the method of Ebstein and Nicolaier. Fifty per cent of the rabbits and dogs fed oxamid showed calculus formation in the urinary tract. Cultures from the kidneys and the urine of such animals were consistently sterile. The oxamid seemed to be excreted

as such or as a hydrolysis product in combination with organic pigment material. The crystals of oxamid thus deposited differed in form from the synthetic product fed and showed a tendency to fusion which varied with the several morphologic varieties of crystals observed. Precipitation of synthetic oxamid from human or animal urine *in vitro* yielded crystalline forms identical with those passed by animals fed the drug. These crystals also tended to fuse and form concretions. By removing most of the organic pigment material from the stone-forming oxamid crystals a form closely resembling synthetic oxamid in crystalline morphology was obtained.

Oxamid seemed to be specifically precipitated in combination with the colloidal organic material normally present in animal urine. In this precipitation there is a tendency to fusion and stone formation, a fact suggesting that calculi in human beings may be due to atypical deposition of crystals by pathologic colloids present in pus formed by bacterial infection or brought into the urinary stream by anomalous metabolic processes.

In case of oxamid stone formation, mechanical factors such as organic nuclei, stasis, and diverticula, while not essential to the process, greatly increase the deposition of fusing crystals and hence cause the stone to grow. This suggests the possibility that such factors play a similar rôle in the formation of the stones seen clinically.

Several experiments illustrating the effect of colloids produced bacterially in the precipitation of small concretions are cited. Twelve rabbits were fed with sodium oxalate after a colon-bacillus infection had been produced in one kidney. Four of these developed small concretions in the calices of the infected kidney.

In one instance concretions were produced by the intravenous injection of colon bacilli grown from a calculus obtained from a clinical case into a rabbit whose kidney had been previously traumatized.

It is suggested that there are four protective mechanisms against the formation of stone: (1) the natural metabolic defense against the over-concentration of urinary crystalloids, (2) the protective colloids of the urine, (3) the ability of the urine, when saturation is reached, to deposit crystals singly in isolated units, and (4) the form and muscular activity of the urinary tract.

Calculi are due to abnormal colloidal matter in urine. This probably arises most frequently from inflammatory exudates of specific bacteria. The possibility that bacteria may be formed from excessive crystalline excretion is emphasized. Stasis in the urinary tract, while not a cause of stone, promotes stone growth when the stone-forming process is present.

Bachrach, R.: The Operative Treatment of Genital Tuberculosis (Zur operativen Behandlung der Genitaltuberkulose). *Ztschr. f. urol. Chir.*, 1922, xi, 114.

The author reports that, in the course of years epididymectomy was practiced more frequently by

Zuckerkindl in isolated tuberculosis of the epididymis and in cases in which the extent of the process did not necessitate the removal of the testis. The technique of epididymectomy was as follows:

After the incision in the skin of the scrotum was made under local anaesthesia the vas deferens was divided and the head of the epididymis dissected from the testis along its medial surface, with care to preserve the venous plexus emanating from the testis. After opening of the tunica vaginalis, the serosa was split between the testis and epididymis and from there the latter was dissected in an upward direction. The stump of the vas deferens was then sutured into a slit in the skin above the incisional wound to isolate it and to facilitate local treatment.

In cases of marked caseous softening of the epididymis, in which a dissectional extirpation of the organ is not always possible, the diseased tissue may be excochleated and the wound surface sutured into the skin slit.

Of seventy cases of tuberculosis of the testis or epididymis, thirty-two were treated by unilateral castration and two by total castration. Operation was done thirty-six times for tuberculosis of the epididymis (eight bilateral epididymectomies, twenty-one unilateral epididymectomies, and curettage of the tuberculous focus and implantation of the wound surface in the skin in seven cases).

The ages of the patients were as follows: 15 to 20 years, five; 20 to 30 years, twenty-one; 30 to 40

years, fifteen; 40 to 50 years, eight; 50 to 60 years, fourteen; and 60 to 70 years, seven. Just as in tuberculosis of the bones and joints, trauma is an important predisposing factor also in tuberculosis of the epididymis. Gonorrhoea was found in only sixteen of the author's cases. In twenty, there was an associated lesion at the pulmonary apices. Complicating tuberculosis of other organs the author found in eleven cases (including tuberculous adenitis in children). Tuberculosis of the kidney and of the genital organs is frequently associated with tuberculosis of the epididymis. The author found tuberculosis of the kidney in 20 per cent of his cases. In eight, nephrectomy had been done, and in five a nephrectomy and an epididymectomy.

In general the author is opposed to the conservative treatment of genital tuberculosis. He has been able to trace twenty-five of the patients he treated surgically. Five were dead at the end of three years and fifteen were well. Of the latter, six were treated by epididymectomy, eight were subjected to unilateral castration, and one was treated by bilateral castration.

In conclusion, Bachrach reports the case of a 35-year-old man in which, after failure of many methods, the spreading tuberculous process was finally arrested by extirpation of the seminal vesicle. The time since the operation is still too short, however, to warrant definite conclusions as to the end result.

GLASS (Z).

SURGICAL TECHNIQUE

OPERATIVE SURGERY AND TECHNIQUE; POSTOPERATIVE TREATMENT

Weston, P. G., and Howard, M. Q.: **Magnesium Sulphate as a Sedative.** *Am. J. M. Sc.*, 1923, clxv, 431.

Pure recrystallized magnesium sulphate with its water of crystallization was made into a 50 per cent solution with distilled water, sterilized, and injected subcutaneously and intramuscularly. The authors have given more than a thousand such injections. No local pain or sloughing occurred when a proper aseptic technique was used. In 82.7 per cent of the cases the sedative action was prompt, the patient becoming quiet after from fifteen to thirty minutes and sleeping from five to seven hours. In a few instances the patient became quiet but did not sleep. The effect persisted for from five to ten hours.

In many cases the salt was found to be an excellent substitute for morphine and hyoscine. In 6 per cent of the cases it was necessary to repeat the dose of 2 c.cm. before sedation was obtained. In 11 per cent no effect at all was noted after the injection of three or more doses.

In the dose necessary to produce sedative effects the salt is harmless. The authors have not had an opportunity to use the salt in pre-operative or post-operative cases or acute thyrotoxicosis.

E. C. ROBITSHEK, M.D.

ANÆSTHESIA

Robledo y Sanz: **Arterial Pressure in the Different Types of Anæsthesia** (La presión arterial en las distintas anestias). *Rev. españ. di cirug.*, 1922, iv, 344.

The authors have made 100 experimental determinations of the blood pressure under different types of anæsthesia: chloroform anæsthesia in forty-six cases; ether anæsthesia in four; mixed anæsthesia (chloroform and ether) in fifteen; spinal anæsthesia in fifteen; regional anæsthesia in four; and local anæsthesia in sixteen.

From these investigations he draws the following conclusions:

1. Anæsthesia in general, and chloroform anæsthesia in particular, causes the arterial pressure to fall in more than 50 per cent of the cases during the period of anæsthesia.

2. Mixed anæsthesia also may cause a fall in the arterial pressure, but does not do so in such a high percentage of cases as general anæsthesia.

3. Spinal anæsthesia frequently causes the arterial pressure to drop. Therefore it is not so harmless as is generally believed.

4. Whatever the pathology of shock, general anæsthesia (chloroform anæsthesia especially) favors

its development by causing a rapid fall in the arterial pressure.

5. The arterial pressure after the induction of anæsthesia depends upon many factors, including idiosyncrasy to the anæsthetic, the influence of hospital environment upon the patient, the seriousness of the traumatism, the patient's condition, etc.

6. Local anæsthesia usually increases the arterial pressure or does not change it at all.

W. A. BRENNAN.

Valentin, B.: **The Freezing of Nerves** (Die Nervenvereisung). *Med. Klin.*, 1922, xviii, 1337.

The sequence in which the individual elements of mixed nerve stems lose their function in freezing of the nerve has not yet been determined with certainty. The views of many investigators are diametrically opposed. The most reliable findings are those of Laewen, who showed that the sensory nerve conduction is lost first and the motor function somewhat later. Interruption of conduction persists longest after section of the nerve, continuing until the beginning of regeneration. It lasts for some time also when alcohol and ammonia are used because these cause firm cicatrices. Freezing interrupts conduction for only three days. Ethyl chloride and carbonic acid differ only in the degree of the cold, the former giving 38 degrees and the latter 78 degrees, but the effect is the same.

If we knew the effects of the loss of function in the individual portions of a mixed nerve, it would be possible to learn also the length of time necessary to obtain them and thus to exclude only that portion of the nerve which it is desired to block.

It appears that the freezing procedure offers the best outlook for the future, especially as it is applicable wherever temporary exclusion is required. Microscopic examination on the third day after the freezing reveals degeneration of the central stump but soon thereafter shows regeneration.

In conclusion the author calls attention to a recent work on this subject by Bielschowsky, and supplements his article with a bibliography.

WEICHERT (Z).

Dewes, H.: **Blood-Sugar Determinations in Cases of Operation Performed under Local Anæsthesia and Ether Anæsthesia** (Ueber Blutzuckeruntersuchungen bei Operationen in Lokalanæsthesie und Aethernarkose). *Arch. f. klin. Chir.*, 1922, cxxii, 173.

In practically all cases of extraperitoneal operations performed under local anæsthesia induced with novocaine-adrenalin solution, a slight increase in the blood sugar occurs, which is due entirely to the injection of the anæsthetic fluid. In cases of lapa-

rotomy performed under local anaesthesia and ether anaesthesia, the blood sugar may increase to from two and one-half to four times the normal value. This is attributed to a complex effect of various stimuli upon the peritoneum and the sympathetic nerves in the upper abdomen. Postoperative glycosuria is rare even when there is a considerable increase in the blood sugar during the operation, but it may appear after local anaesthesia as well as ether anaesthesia when there is no increase in the blood sugar.

RAESCHKE (Z).

Mirizzi, P. L.: Splanchnic Anaesthesia (Anestesia esplanchnica). *Rev. méd. d. Rosario*, 1922, xii, 347.

Mirizzi reports the results obtained with the Kappis method, in which only one posterior injection of the anaesthetic is given. With the Braun method, tried in three cases, he obtained satisfactory anaesthesia in only one case. Altogether, thirty-three cases of surgical diseases of the upper abdomen were operated upon under splanchnic anaesthesia; in twenty-six the Kappis method was used, 30 c.cm. of 1 per cent novocaine-adrenalin solution being administered at one injection on the right side. The results were satisfactory in twenty-three cases (88.46 per cent) and mediocre in three. In four cases it was necessary to complete the anaesthesia with 10 c.cm. of the same solution given according to the Braun technique. In two of the three cases in which the results were mediocre, this anaesthesia was the first anaesthesia, and in one, the needle was too short. An important advantage of splanchnic anaesthesia is its duration, which may be as long as two and one-half hours.

W. A. BRENNAN.

Meeker, W. R.: The Use of Paravertebral Nerve Block Anaesthesia in General Surgery. *Minnesota Med.*, 1923, vi, 138.

Local anaesthetic procedures are divided into: (1) terminal infiltration, (2) field block, and (3) nerve block. The newer methods of nerve block were gradually evolved by efforts to widen the scope of operations which may be performed under local anaesthesia. In paravertebral nerve block the nerves are blocked at their points of emergence from the spinal canal; this may be applied to any spinal nerve and to any level of the spine. Each procedure is called by the name of the vertebral segment to which it belongs.

Block of the cervical plexus may be performed by: (1) the posterior route, (2) the lateral direct route, and (3) the lateral oblique route. The lateral methods give a deeper and more efficient anaesthesia. Of the two lateral methods the oblique is to be preferred to the direct because in the former there is no danger of injuring the vertebral vessels and spinal cord. Block of the cervical plexus by the lateral oblique method is a safe and efficient procedure and gives an adequate anaesthesia for all operations on the neck.

Thoracic and lumbar paravertebral nerve block is most efficient in laminectomy and thoracic opera-

tions. It also has a limited value in radical removal of the breast and in nephrectomy. The use of bilateral paravertebral nerve block for abdominal operations is not to be recommended. The technique is highly complicated, tedious, and time-consuming, the anaesthesia is often insufficient, the demands made upon the patient's psyche are rather severe, and the injections are not free from risk. In the experience of the Mayo Clinic this procedure has been unsatisfactory for abdominal surgery even in the hands of experts. In block of the sacral nerves preference is given to the trans-sacral method in which injection of the nerves at the posterior sacral foramina is combined with a low epidural injection. By this method a very good anaesthesia of the entire pelvic floor and viscera is produced. When it is combined with a field block in the abdominal wall for suprapubic incision, resection of the bladder and prostatectomy may be performed painlessly.

The value of paravertebral nerve block is not the same at all levels of the spine. It is most efficient in surgery of the pelvic floor and viscera and the neck. It is least satisfactory in abdominal surgery, in which its use is never indicated.

Ciaprini, G.: A Clinico-Statistical Contribution on Spinal and Local Anaesthesia from the Aquila Hospital (Contributo clinico-statistico sulle rachianestesi e anestesi locali praticate presso l'Infermeria presidiaria di Aquila). *Policlín.*, Rome, 1922, xxx, sez. prat., 111.

In the Aquila Hospital spinal anaesthesia was induced in the cases of 286 patients ranging in age from 20 to 60 years. In 284, stovaine was employed. In 257 of these, a positive immediate anaesthesia was obtained; its duration varied from one and one-half to two hours. In 105 cases local anaesthesia was induced for minor operations, novocaine being used in the majority. From this experience Ciaprini draws the following conclusions:

1. Spinal anaesthesia may be employed when general and local anaesthesia are contra-indicated.
2. Dangers, failures, and inconveniences depend upon the dosage, the nature, purity, and stability of the preparation used, and the region in which the puncture is made. Stovaine, mixtures of stovaine and novocaine, and novocaine and adrenalin have been found non-toxic. For sub-umbilical operations the puncture should be made at the level of the third or fourth vertebra.

3. Local anaesthesia induced with novocaine and adrenalin should be used when general anaesthesia and spinal anaesthesia are contra-indicated.

W. A. BRENNAN.

Fasano, M.: Supra-Umbilical Spinal Anaesthesia (La rachianestesia sopra-ombelicale). *Arch. ital. di chir.*, 1922, vi, 507.

After a preliminary injection of 0.01 gm. of morphine and 0.005 gm. of scopolamine, lumbosacral spinal puncture is performed with the patient in the sitting position. From 20 to 30 c.cm. of cerebro-

spinal fluid are withdrawn, depending on the pressure. Anæsthesia is then induced with 0.12 gm. of sincaïne (French novocaine) dissolved in 3 c.cm. of distilled water. As this is injected, cerebrospinal fluid is withdrawn into the syringe and mixed with it. For operations on the perineum or lower extremities, 0.09 gm. of sincaïne is sufficient. After the injection the patient is kept in the sitting position for five minutes and then allowed to lie undisturbed for five minutes before the operation is begun.

In three hundred cases treated in this manner there was only one postoperative death, that of a man 75 years old who had a strangulated hernia which caused fæcal vomiting.

A disadvantage of the method is that the anæsthesia is imperfect in about 30 per cent of the cases. In such cases infiltration of the abdominal wall with 1 per cent novocaine is indicated.

Toxic symptoms sometimes arise from the spread of the sincaïne to the central nervous system. The vomiting center is first involved. An injection of 0.25 to 0.50 gm. will overcome this condition.

Guibal reported five cases of apnoea. One patient died, but the others were restored by artificial respiration. Bloch and Hertz reported four cases of apnoea preceded by nausea, sweating,

pallor, midriasis, absence of the ocular reflexes, and slowing of the pulse, which were cured by caffeine injections.

An almost constant phenomenon, especially in cases with abdominal inflammation, is anal incontinence. This is considered an advantage because the discharge of pent-up fæcal material during the operation renders unnecessary the use of post-operative enemata and medication to induce bowel movements and does not endanger the aseptis of the wound. Headache associated with this type of anæsthesia is of short duration. Spinal hæmorrhage and aseptic meningitis as complications have been reported. Septic meningitis following the procedure is due probably to bacteria from the blood stream. Tuberculous meningitis has been considered a possible sequela.

In spite of these inconveniences and possible dangers, spinal anæsthesia has fewer complications than inhalation anæsthesia. Its advantages are that the anæsthetic is rapidly eliminated; operation may be performed on persons whose condition contra-indicates inhalation anæsthesia; there is absence of shock; the muscles are completely relaxed; breathing is regular; vomiting does not occur; the patient is able to co-operate; and the services of one assistant may be dispensed with. KELLOGG SPEED, M.D.

PHYSICO-CHEMICAL METHODS IN SURGERY

ROENTGENOLOGY

Juengling: *The Rational Roentgen-Ray Dosage in the Treatment of Surgical Diseases* (Die rationelle Roentgenstrahlendosis bei Behandlung chirurgischer Erkrankungen). *Strahlentherapie*, 1922, xiv, 634.

This article deals with the dosage for carcinoma, sarcoma, and tuberculosis. The conception of the carcinoma dose as a curative dose is rejected. Instead, this dose is considered to be the minimum dose which will usually exert an influence on carcinoma. The upper limit of the allowable dosage is estimated as 110 to 125 per cent of the skin-unit dose. This assumption is based on experimental findings.

The effect on the focus is purely local, ceasing abruptly with the affected capillaries and the carcinoma cells. The important element in the action of the X-rays in carcinoma is primary injury of the carcinoma cells. From this the conclusion is to be drawn that the required minimum dosage must be administered to the entire region endangered. A growth-inhibiting effect upon the carcinoma has not been observed following the administration of 20 to 40 per cent of the skin-unit dose.

Twenty per cent of sarcomata are refractory, others disappear very readily, and others retrogress but do not disappear entirely. The last-mentioned usually have a medium sensitiveness, which may lie near the skin-unit dose. Therefore the sarcoma dosage as originally defined is rejected. It is rather a useful medium value. In sarcomata the dose may be scattered.

In the treatment of tuberculosis, roentgenologists are returning to the use of small doses. The author describes the technique for the treatment of lymphomata, peritonitis, and joint infection.

SILBERBERG (Z).

Maximow, A. A.: *Studies of the Changes Produced by the Roentgen Rays in Inflamed Connective Tissue.* *J. Exper. Med.* 1923, xxxvii, 319.

The inflammatory changes in connective tissue have been the subject of investigation by the author for many years. To determine the changes produced by irradiation, he conducted a number of experiments on rabbits. An aseptic inflammation was caused by introducing blocks of celloidin into the subcutaneous or intermuscular loose connective tissue of the abdomen and subjecting this area to roentgen irradiation. Different animals were given an increasing number of exposures and microscopic examination of the tissues was made at intervals thereafter. The findings were checked up by controls.

It was found that the action of the roentgen rays on inflamed tissue manifests itself first by a considerable depression of the usual reaction of the fibro-

blasts. Under normal circumstances these elements begin to divide mitotically during the first twenty-four hours and soon form a layer of new connective tissue surrounding the foreign body. After treatment with the roentgen rays they remain idle, do not multiply at all or begin very late, and often divide abnormally. They undergo a high degree of pathological hypertrophy of protoplasm and nucleus. Instead of mitosis, amitotic constrictions often appear in the nucleus. The capacity for collagen formation also seems to be lost.

With these changes of the fibroblasts an intensive oedema of the connective tissue surrounding the foreign body is noted, and in the immediate neighborhood of the latter a thick layer of net-like clotted fibrinous exudate is formed.

No distinctive qualitative changes can be found in the leucocytes and polyblasts. Degeneration is present here only to the same extent as in common aseptic inflammation. First, however, the rate and the duration of the emigration of all the cells coming from the blood are increased, and, secondly, there is always a distinct delay in the process of the common transformations usually undergone by the polyblasts on the field of inflammation. Above all, the transformation of the polyblasts into fixed resting forms seems to be delayed. Therefore, even in the late stages, the tissue is overcrowded with granular special leucocytes and mostly young, lymphocyte-like polyblasts, whereas in the early stages the local resting wandering cells undergo mobilization slowly.

In the blood vessels swelling of the endothelial cells with fragmentation of the nuclei and, in the striated muscles, degeneration of the fibers can be detected. In the latter, both typical coagulation necrosis and atrophy occur, accompanied by loss of striation, separation of the fibrillae from one another, a relative increase in sarcoplasm, and amitotic division of nuclei.

It is evident that the changes in the cells of the inflamed area, chiefly in the fibroblasts, but also in the muscle fibers, under the influence of the roentgen rays are the result of complicated interrelations between two different agents, first, the inflammation stimulus, and, second, the radiant energy. In the doses used, neither agent alone was able to produce the changes observed. It seemed to be immaterial, to a certain degree, which of the two stimuli was applied first—whether the foreign body was introduced into previously exposed tissue, or the tissue was exposed after the introduction of the body.

The strong inhibitory and deleterious influence of the roentgen rays on inflamed connective tissue should therefore be borne in mind in the therapeutic use of this kind of energy, especially in cases of malignant tumors.

ADOLPH HARTUNG, M.D.

Kok, F., and Vorlaender, K.: Biological Investigations of the Effect of Irradiation on Carcinoma
(Biologische Versuche ueber die Wirkung der Bestrahlung auf das Carcinom). *Strahlentherapie*, 1922, xiv, 497.

The author reports on very extensive investigations in which great care was taken to avoid all the dosimetric and biological causes of error which have led to variation in the results obtained heretofore. As it is impossible to conduct extensive serial investigations on human carcinomata under entirely similar preliminary conditions, inoculation tumors of mice were used for the biological tests.

In order to achieve a comparison with the treatment given in clinical cases an attempt was first made to determine the epilatory and erythema dosage in the mouse. It was found that the lower limit of the epilatory dose is about 250 e (e = the electrostatic unit), whereas inflammation of the skin or

vesicle formations were not observed even when very much higher doses were used. Therefore a direct calculation by the methods applied in clinical cases to determine the so-called carcinoma dose in the mouse is impossible. It may be assumed, however, that the carcinoma dosage for the mouse tumors is a little higher—about 300 e.

The microscopic study of the skin of the irradiated animals showed changes not only on the irradiated areas, but also on the non-irradiated areas. This indirect effect was fundamentally similar to the direct effect but was weaker. It was not produced by scattering or secondary irradiation as it was found also in areas which could not have been exposed to such irradiation. This constantly found effect in the non-irradiated skin suggests that the rays have a general effect which, according to Opitz, is an increase in the natural protective reaction.

HARMS (Z).

MISCELLANEOUS

CLINICAL ENTITIES—GENERAL PHYSIOLOGICAL CONDITIONS

Crile, G. W.: Studies in Exhaustion: Physical Trauma. *Arch. Surg.*, 1923, vi, 489.

This article is one of a series written by Crile on exhaustion. The studies included observations on the blood pressure following physical injury to various organs and tissues; histologic changes in various organs; changes in the blood chemistry; changes in electrical conductivity; and temperature variations in the brain and liver.

Reports of this research in regard to the early and late effects of such trauma have been published from time to time.

There is a definite quantitative relationship between physical trauma and shock which can be estimated from blood-pressure variations, the amount of shock depending on the amount of injured tissue, the intensity of the injury itself, and the number of injury impacts. Injuries to the deep protected organs or structures produce collapse rather than shock, while injuries to the more exposed parts cause greater shock.

There is a direct relationship also between the nerve supply of the injured part and the degree of shock. Shock can be eliminated by blocking the nerve supply of the part with a local anæsthetic. Exhaustion of the vasomotor mechanism is an important factor, although not the only productive factor in shock.

The findings of a series of experiments showing the histologic effects of trauma to the various organs are tabulated. Trauma under ether, under nitrous-oxide oxygen anæsthesia, and after the complete severance of the spinal cord was studied. Less shock was noted under nitrous-oxide oxygen anæsthesia than when ether was used, and after the cord was completely severed no amount of trauma caused the subjective shock symptoms or the characteristic histologic changes noted in shock.

Experiments were made to determine whether or not shock can be transmitted through the blood from a traumatized to a non-traumatized animal either by blood transfusion or a direct vascular anastomosis. The unshocked dog showed no histologic changes attributable to shock.

Other experiments were made to determine the effect of physical trauma to organs other than the central nervous system. Changes were noted in the liver, and to a less degree, in the suprarenals. Other organs were apparently not affected. Studies were made of the suprarenal output in shock, chemical changes in the blood, the electric conductivity of the brain and liver, and temperature variations in the brain and liver during shock.

On the basis of these exhaustive studies, the author concludes that the principal causes of exhaustion and shock after physical trauma are changes in the central nervous system. To a less degree the liver and adrenals are involved. There is no direct evidence indicating a constant primary change in the blood produced by physical trauma. Exhaustion from emotional changes, insomnia, or exertion is identical with that produced by physical trauma.
H. M. CAMP, M.D.

Banting, F. J.: Insulin. *J. Michigan State M. Soc.*, 1923, xxi, 113.

The author reviews briefly the history of diabetes from the middle of the sixth century to the present time. He then tells of the experimental work and describes the clinical case reported by Barron in which obstruction of the pancreatic duct caused destruction of azymous tissues without producing diabetic symptoms. This condition was experimentally reproduced by Banting who found that the injection of the degenerated remnant of the pancreas into a diabetic dog resulted in a marked reduction in the blood sugar. Later an extract made from the degenerated gland was used with like results. This extract was the first insulin.

Because of the expense and time required to produce pancreatic degeneration, efforts were directed to obtain insulin by some other method. The next extract was made from the pancreas of fetal animals. In this manner enough active extract was obtained to continue the experimental work. It was found that with insulin the blood sugar of completely depancreatized dogs can be maintained within normal limits and that the life of such a diabetic dog can be prolonged indefinitely. Similar effects of the extract were obtained in clinical cases of diabetes. It was discovered also that an excess of insulin was liable to produce too great a reduction in the blood sugar with symptoms resembling those of diabetic coma.

The commercial production of insulin and the methods adopted for its introduction to the profession in order to safeguard the public are discussed in detail.
WILLIAM E. SHACKLETON, M.D.

Blond, K.: Traumatic Epithelial Cysts (Zur Kenntnis der traumatischen Epithelcyste). *Arch. f. klin. Chir.*, 1922, cxx, 695.

The author has examined histologically a large number of epithelial cysts in the Surgical Division of the General Hospital of Vienna. He reports, with illustrations, six typical cases.

With regard to the etiology there are two views: According to Reverdin and Garré, the cause is traumatic displacement of a bit of epidermis into

the subcutaneous tissue, while according to Pels-Leusden and Horn, it is an injury of the sebaceous and sudoriferous glands and the hair follicles around a foreign body which has entered from the outside. The theory of Reverdin and Garré explained all of the author's cases except two.

Blond does not consider it justifiable to deny the existence of traumatic dermoids and to regard all dermoids as congenital. Traumatic dermoids may occur in almost any part of the body. The belief that they seldom appear elsewhere than on the palm of the hand is to be explained on the basis of an incorrect diagnosis of atheroma, fibroma, etc.

The author proposes substitution of the term "traumatic epidermoid" for the term "traumatic epithelial cyst."

SONNTAG (Z).

GENERAL BACTERIAL INFECTIONS; GENERAL MYCOTIC INFECTIONS

Regan, J. C.: *The Treatment of Cutaneous Anthrax, with a Few Remarks on Prophylaxis.* *N. York State J. M.*, 1923, xxiii, 113.

Cutaneous anthrax is disseminated among animals by the products of animal life, the urinary and faecal discharges, the hair and hides of infected animals, and the cadavers of animals which died of the disease or harbored anthrax bacilli in their hair.

The anthrax bacillus readily produces spores and these may remain a potential source of infection in the soil for years. Cattle pasturing on such lands become infected.

The measures for prevention comprise: (1) the burning of infected carcasses of animals dying of the disease, (2) destruction of the virus by proper drainage and cultivation of the soil, and (3) proper disinfection of all imported hair and hides, including the proper disposal of all waste matter, smudge, and drainage water from tanneries, and (4) the prevention of outbreaks of anthrax by thoroughly immunizing all susceptible or exposed animals by means of anthrax vaccine.

Human infections, especially in the form of cutaneous anthrax or malignant pustule, are almost always contracted from animals directly or from animal products such as the hide or hair.

Early diagnosis is of the utmost importance. Thermocauterization should not be used. Chemical caustics are also contra-indicated. The severity of the method, the pain produced, the subsequent development of more local edema, the indiscriminate destruction of both dead and living tissue, and the prolonged convalescence renders these methods undesirable.

Of the surgical measures for anthrax, incision is the oldest but is now in general disfavor. The method most commonly used at present is excision, but this has limitations and disadvantages which make it inappropriate if there is another method which is reliable, applicable to all cases, and less severe.

Anti-anthrax serum was originally produced by Marchoux of France and Sclavo of Italy in 1895 by

immunizing sheep. The relatively few failures in the use of this serum can be traced to: (1) its use too late in the course of the disease, after a septicaemia had supervened or within twelve to twenty-four hours of death; (2) the employment of too small doses—20 to 30 c.cm.; (3) failure to repeat the injections frequently (in many instances only one dose was given and that subcutaneously); (4) its use for patients with chronic diseases such as myocarditis, nephritis, syphilis, etc.

Regan contends that other local methods should not be used in conjunction with serum. Either they are inefficient or so radical that there is danger of further local involvement or septicaemia.

The author has devised the local injection of anti-anthrax serum. For giving these injections a 2- to 5-c.cm. Luer syringe fitted with a fine needle is used. After the application of iodine to the skin the needle is inserted into the indurated border of the pustule and directed fairly deeply (from 2.5 to 3.5 cm.) into the subcutaneous tissue at the base of the lesion. From 5 to 12 c.cm. of serum is then given, depending on the size of the lesion, the needle being inserted at two or three points and the serum injected so as to circumscribe the pustule. The injections are given once or twice in twenty-four hours in mild or moderate cases, and every six to eight hours in more severe cases.

Following such local injections the lymph secretion in the region of the pustule contains a high antibody content. The type of the local inflammatory reaction is peculiar. The serous discharge from the pustule is characteristically poor in leucocytes, and microscopic sections of the lesion show a strong tendency of the bacilli to collect in the center of the pustule, the leucocytes being distributed as a dense infiltration around the margins of the lesion and in the subjacent cellular tissues. Probably this is due to negative chemotaxis. Since the serum has a marked effect in facilitating phagocytosis, it is logical to supply it in concentrated form at the site of the infection.

The local injections must be supplemented by general administration of the specific agent by the subcutaneous, intravenous, or intramuscular routes.

In mild cases without septicaemia the dosage averages 40 to 50 c.cm. every twelve to twenty-four hours. The first few injections are intravenous, while those given later are intramuscular and subcutaneous. In moderate cases, 50 to 100 c.cm. are given intravenously at first for three or four injections every eight to twelve hours, and then small doses are given by intramuscular and subcutaneous injection. In severe cases, 80 to 120 c.cm. (or even 200 c.cm.) are given intravenously every six to eight hours for five or six more injections, until the disease is controlled, when the intramuscular and subcutaneous routes may be used. In cases with septicaemia the dosage must be very high, from 150 to 300 c.cm. given every three to six hours.

The appearance of a serum rash several days after the injection is fairly common. It is advisable to

test the patient out for sensitization by a cutaneous test, and if a reaction is obtained to desensitize before giving the injection. The first few cubic centimeters should be allowed to enter the vein very slowly and should be well diluted with normal saline. The rest can then be given undiluted.

MORRIS H. KAHN, M.D.

White, P. A.: Actinomycosis: Diagnosis and Treatment. *J. Iowa State M. Soc.*, 1923, xiii, 105.

In the Western and Northwestern states, it is important that actinomycosis as a pathological entity be kept in mind. Of 215 collected cases, about 40 per cent were from these states.

The disease occurs commonly in cattle, in which it is known as "lumpy jaw." Sixty per cent of the cases of actinomycosis in man are those of farmers. These facts indicate that there is either direct transference from animals or indirect inoculation by means of some material such as grasses or grains contaminated by animals.

The lesions may occur in almost any part of the human body. The head and neck are involved in over 60 per cent of the cases.

A definite clinical diagnosis of actinomycosis is often difficult, especially if the case is seen early or late. In early cases the condition is difficult to distinguish from tuberculosis of the glands, Hodgkin's disease, sarcoma, or simple phlegmon. Practically, the diagnosis is made by finding the yellow bodies in the purulent discharge from an incised abscess or open sinus.

For the treatment, numerous drugs have been advocated—copper salts, internally and externally, methylene blue internally and injected into the

tissues and sinuses, etc. Autogenous and polyvalent stock vaccines have been used and supplemented by surgical treatment. Roentgen-ray and radium therapy have yielded some successful results. In two cases, arsphenamin gave splendid results. Incision of the abscess, swabbing the cavity with iodine, and packing with iodoform gauze is an effectual method.

In chronic cases, the patient should be told that the condition is prone to recur and spread, that other abscesses are apt to form, and that treatment will necessarily be prolonged. An acute case with a definitely localized abscess will usually heal primarily without recurrence after the usual treatment.

SAMUEL KAHN, M.D.

SURGICAL PATHOLOGY AND DIAGNOSIS

Keiser, V. D.: A Rapid Technique for Preparing Histologic Sections by the Paraffin Method. *J. Am. M. Ass.*, 1923, lxxx, 690.

The method described depends primarily on hastening the dehydration process by the use of hot acetone. In the author's laboratory this is accomplished by placing the fixed tissue in a 30-c.cm. specimen bottle of thick glass, adding about 25 c.cm. of acetone, clamping the cork in place, and then putting the bottle in the paraffin oven at 60 degrees C. for two hours. At the end of this time the dehydration process is completed, as evidenced by the absence of turbidity on the addition of xylene. As acetone is about as inflammable as alcohol, the pressure flask must not be opened near a flame.

E. C. ROBITSHEK, M.D.

BIBLIOGRAPHY *of* CURRENT LITERATURE

NOTE.—THE BOLD FACE FIGURES IN BRACKETS AT THE RIGHT OF A REFERENCE INDICATE THE PAGE OF THIS ISSUE ON WHICH AN ABSTRACT OF THE ARTICLE REFERRED TO MAY BE FOUND.

SURGERY OF THE HEAD AND NECK

Head

A case of cranio-cleido dysostosis. A. B. COCKER and H. S. SIMS. *Lancet*, 1923, cciv, 595.

Osteoma of the skull: report of two cases, one being associated with a large intracranial endothelioma. C. W. RAND. *Arch. Surg.*, 1923, vi, 573. [1]

Surgical end-results in general, with a case of cavernous hemangioma of the skull in particular. H. CUSHING. *Surg., Gynec. & Obst.*, 1923, xxxvi, 303.

Depression of the cranium; aphasia; operation; recovery. P. JAUREGUI. *Rev. Asoc. méd. argent.*, 1922, xxxv, 993.

Plastic repair of the skull by autogenous bone grafts following compound depressed fracture. S. ZIELONKA. *Cincinnati J. M.*, 1923, iv, 9.

Late result of craniectomy for depression causing hemiplegia. C. I. ALLENDE. *Rev. Asoc. méd. argent.*, 1922, xxxv, 988.

Intracranial aerocele. W. WHEELER and E. C. SMITH. *Brit. M. J.*, 1923, i, 560.

Traumatic intracranial aerocele. W. WHEELER. *Lancet*, cciv, 529. [2]

The nature of cranial hyperostosis overlying an endothelioma of the meninges. D. B. PHEMISTER. *Arch. Surg.*, 1923, vi, 554. [2]

Complete separation of the facial bones from the base of the skull. A. ASPINALL. *Med. J. Australia*, 1923, i, 292.

The laws of leverage governing splint work on the various fractures of the bones of the face and head. G. C. SMITH. *Internat. J. Orthodont., Oral Surg. & Radiography*, 1923, ix, 211.

Plastic repair of the face and limbs. J. J. M. SHAW. *Brit. M. J.*, 1923, i, 511.

Eye

Congenital anophthalmos, with report of a case. U. C. BOON. *J. Oklahoma State M. Ass.*, 1923, xvi, 63.

Unilateral exophthalmos: a clinical report of five cases. C. H. FRAZIER and K. M. HOUSER. *Surg. Clin. N. Am.*, 1923, iii, 281. [3]

The importance of radiography in doubtful cases of optic atrophy, with special reference to pituitary disease. R. E. WRIGHT and T. W. BARNARD. *Brit. J. Ophth.*, 1923, vii, 123. [3]

Some eye data of interest to the general practitioner. H. L. GOWENS. *Hahneman. Month.*, 1923, lviii, 185.

Some practical points in refraction. C. D. WESCOTT. *Am. J. Ophth.*, 1923, vi, 204. [3]

The therapeutic use of weak atropine solution in asthenopia. W. E. GAMBLE. *Arch. of Ophth.*, 1923, lii, 160.

Three cases of asthenopia treated by psychotherapy. W. B. LANCASTER. *Am. J. Ophth.*, 1923, vi, 216.

Headache from the ophthalmological standpoint. J. M. GRISCOM. *Pennsylvania M. J.*, 1923, xxvi, 359. [3]

Visual hygiene and prophylaxis. J. GREEN, JR. and J. F. HARDESTY. *Ophth. Lit.*, 1922, xviii, 573.

The Ladd Franklin hypothesis of color vision. H. HART- RIDGE. *Brit. J. Ophth.*, 1923, vii, 139.

Ocular lesions produced by lightning. S. CECILIA. *Brazil-med.*, 1923, xxxvii, 183.

The treatment of eye injuries, with use of the conjuncti- val flap, in perforations. O. I. GREEN. *J. Oklahoma State M. Ass.*, 1923, xvi, 61.

General pathology. E. HILL. *Ophth. Lit.*, 1922, xviii, 539.

General diseases with ocular involvement. B. W. KEY. *Ophth. Lit.*, 1922, xviii, 543.

Some observations on eye lesions of nasal origin. J. D. HEITGER. *South. M. J.*, 1923, xvi, 218. [4]

The practical side of the ophthalmometer. O. OREN- DORD. *Am. J. Ophth.*, 1923, vi, 215.

A plea for more general use of the cross cylinder. W. H. CRISP. *Am. J. Ophth.*, 1923, vi, 209.

Operation for palpebral ptosis. E. CAMPOS. *Brazil- med.*, 1923, xxxvii, 185.

Gumma of the internal palpebral commissure simulating an epithelioma. M. M. AMAT. *Siglo med.*, 1923, lxx, 254. *Rev. méd. de Sevilla*, 1923, xlii, 21.

Diseases of the eyelids. F. M. SCHNEIDEMAN. *Ophth. Lit.*, 1922, xviii, 458.

A case of ulcerative blepharitis or a ciliary folliculitis due to staphylococcus infection. A. FIALHO. *Brazil-med.*, 1923, xxxvii, 159.

The incubation period of trachoma. H. GIFFORD. *Am. J. Ophth.*, 1923, vi, 221.

A myeloma occurring near the lachrymal sac. GINE- STOUS and NANCEL-PENARD. *J. de méd. de Bordeaux*, 1923, cxv, 164.

The lachrymal apparatus. M. WIENER. *Ophth. Lit.*, 1922, xviii, 443.

Malignant lymphoma of the lachrymal gland. L. M. FRANCIS. *Am. J. Ophth.*, 1923, vi, 182.

Conjunctivitis of the tarsus and giant papillæ cured with radium treatment. M. AMAT. *Rev. méd. de Sevilla*, 1923, xlii, 17.

Vernal conjunctivitis. A. G. FORT. *J. Med. Ass. Georgia*, 1923, xii, 101.

Pemphigus conjunctivæ: report of a case. C. STOCKARD. *J. Med. Ass. Georgia*, 1923, xii, 95.

Report of a case of melanosarcoma of the conjunctiva. A. S. FERNANDO. *Arch. Ophth.*, 1923, lii, 168. [4]

Corneal deposits of cholesterol and lime salts dissolved by alcohol. L. F. LOVE. *Am. J. Ophth.*, 1923, vi, 174.

Corneal ulcer cured by tonsillectomy: report of a case. C. B. WILLIAMS. *J. Am. M. Ass.*, 1923, lxxx, 917.

Operation for pterygium. A. FIALHO. *Brazil-med.*, 1923, xxxvii, 129.

Tuberculin as a therapeutic agent in certain forms of keratitis. W. G. REEDER. *Illinois M. J.*, 1923, xliii, 241. [4]

- A case of mesoblastic leiomyoma of the iris. F. H. VERHOEFF. *Arch. Ophth.*, 1923, lii, 132. [4]
- Spontaneous luxation of the crystalline lens. A. FIALHO. *Brazil-med.*, 1923, xxxvii, 141.
- Cataract after thyroidectomy. A. VAN LINT. *Bruxelles méd.*, 1923, iii, 486.
- Blocking the main trunk of the facial nerve in cataract operations. R. E. WRIGHT. *Arch. Ophth.*, 1923, lii, 166.
- Factors of safety in the operation for cataract. J. GREEN, JR. *J. Missouri State M. Ass.*, 1923, xx, 83.
- Cataract extraction and complications. W. F. HUGHES. *J. Indiana State M. Ass.*, 1923, xvi, 79.
- Interesting experiences in cataract extraction among Confederate veterans. M. EQUEN. *J. Med. Ass. Georgia*, 1923, xii, 97.
- Cataract extraction in a man suffering from pernicious anemia. J. B. STANFORD. *Am. J. Ophth.*, 1923, vi, 223.
- The extraction of cataract containing a foreign body. J. WOLFF. *Am. J. Surg.*, 1923, xxxvii, 71.
- Injuries of the eyeball and the adjoining parts. T. B. SCHEIDEMAN. *Ophth. Lit.*, 1922, xviii, 522.
- The orbit and orbital disease. W. L. BENEDICT. *Ophth. Lit.*, 1922, xviii, 477.
- Oil cyst of the orbit. A. KNAPP. *Arch. Ophth.*, 1923, lii, 163.
- Tumors and cysts arising near the apex of the orbit. W. L. BENEDICT. *Am. J. Ophth.*, 1923, vi, 183. [4]
- Neurofibroma of the orbit. E. STIEREN. *Am. J. Ophth.*, 1923, vi, 176.
- Tuberculoma of the orbital cavity. D. ROY. *Arch. Ophth.*, 1923, lii, 147.
- Tumors of the eyeball and orbit. J. M. GIFFORD. *Ophth. Lit.*, 1922, xviii, 499.
- Ocular parasites. J. M. SHIELDS. *Ophth. Lit.*, 1922, xviii, 518.
- The significance of the tuberculin reaction and other problems in ocular tuberculosis. W. H. LUEDDE. *Am. J. Ophth.*, 1923, vi, 161.
- Glaucoma surgery. M. GOLDENBURG. *Illinois M. J.*, 1923, xliii, 219. [5]
- Retrobulbar optic neuritis in posterior sinusitis. E. B. DEMARÍA and J. LAYERA. *Rev. Asoc. méd. argent.*, 1922, xxxv, 769.
- Occlusion of the central retinal artery. F. F. AGNEW. *J. Iowa State M. Soc.*, 1923, xiii, 83.
- Discussion of the differentiation and prognosis of arteriosclerotic and renal retinitis. H. B. SHAW, R. F. MOORE, P. BARDSLEY, and others. *Arch. Ophth.*, 1923, lii, 181.

Ear

- Diminution of the lobes of the ear. E. EITNER. *Wien. med. Wchnschr.*, 1923, lxxiii, 255.
- The pathological and clinical aspects of deaf-mutism. J. S. FRASER. *Laryngoscope*, 1923, xxxiii, 177. [5]
- Oto-rhinolaryngeal affections of the endocrines. J. DE LA C. CORREA and R. BECCO. *Semana méd.*, 1923, xxx, 112.
- Headache from the standpoint of the otologist. G. W. MACKENZIE. *Pennsylvania M. J.*, 1923, xxvi, 360.
- Some cases of otosclerosis with an unusual symptom (otosclerosis paradoxica). A. E. GRAY. *Proc. Roy. Soc. Med., Lond.*, 1923, xvi, Sect. Otology, 9.
- The effect of small doses of roentgen rays in certain forms of impaired hearing. D. C. JARVIS. *Am. J. Roentgenol.*, 1923, x, 201. [6]
- The treatment of defective hearing by small doses of X-rays. J. MCCOY. *Am. J. Roentgenol.*, 1923, x, 203. [6]
- Diphtheritic otitis media. W. J. MELLINGER. *California State J. M.*, 1923, xxi, 151.

- The management of discharging ears in children. E. BOYD. *Canadian M. Ass. J.*, 1923, xiii, 175. [6]
- The therapeutic problems of acute middle ear infection. M. F. MCCARTHY. *Kentucky M. J.*, 1923, xxi, 140. [6]
- An unusual case of mastoiditis. T. E. HUGHES. *Virginia M. Month.*, 1923, xlix, 726.
- Acute mastoiditis with facial paralysis and remittent meningitis. A. ROTH. *N. York M. J. & Med. Rec.*, 1923, cxvii, 265.
- The technique of a radical mastoidectomy. F. E. HASTY. *South. M. J.*, 1923, xvi, 227.

Nose

- Transatlantic development of rhinolaryngology. H. S. BIRKETT. *Laryngoscope*, 1923, xxxiii, 161.
- A rare malformation of the alae nasæ. T. VON LIEBERMANN. *Klin. Wchnschr.*, 1923, ii, 307.
- The value and ultimate fate of bone and cartilage transplants in the correction of nasal deformities. W. W. CARTER. *Laryngoscope*, 1923, xxxiii, 196. [7]
- An instrument (drill) to facilitate the correction of certain types of external deformities of the nose. S. ISRAEL. *J. Am. M. Ass.*, 1923, lxx, 690.
- Benign and malignant growths of the nasopharynx and their treatment with radium. S. J. CROWE and J. W. BAYLOR. *Arch. Surg.*, 1923, vi, 429.
- Report of a case of granuloma rubra nasæ. W. H. GORDON. *J. Michigan State M. Soc.*, 1923, xxi, 132.
- Headache from the standpoint of the rhinologist. G. W. MACKENZIE. *Hahnenan. Month.*, 1923, lviii, 177.
- Headache from the standpoint of the rhinologist. G. B. JOHNSON. *Pennsylvania M. J.*, 1923, xxvi, 362. [7]
- Some relations of the nose to the eye and ear. B. F. ANDREWS. *Illinois M. J.*, 1923, xliii, 195.
- The symptoms and treatment of deviations of the nasal septum. E. E. EDMONDSON. *Illinois M. J.*, 1923, xliii, 208.
- Surgical treatment of nasal fissures. A. TROSE. *Spitalul*, 1922, xlii, 314.
- Opening of the sphenoidal sinus by the endoseptal route. J. ROUGET. *Presse méd., Par.*, 1923, xxxi, 302.
- Cerebrospinal rhinorrhea: report of a case. J. E. LOFTUS. *J. Am. M. Ass.*, 1923, lxxx, 841.
- Contributions to the diagnosis of subacute and chronic inflammatory lesions of the mucosa lining the maxillary antrum of Highmore. W. SPIELBERG. *Laryngoscope*, 1923, xxxiii, 203.
- Pulmonary sequelæ of oral and nasal operations. C. C. BROWNING. *Northwest Med.*, 1923, xxii, 92.

Mouth

- The technique of oral radiography. C. O. SIMPSON. *Internat. J. Orthodont., Oral Surg. & Radiography*, 1923, ix, 236.
- Ultraviolet in oral surgery. A. J. PACINI. *Internat. J. Orthodont., Oral Surg. & Radiography*, 1923, ix, 227.
- The early treatment of malocclusion. E. C. READ. *Internat. J. Orthodont., Oral Surg. & Radiography*, 1923, ix, 175.
- Some advantageous methods of applying the lingual arch. W. J. BELL. *Internat. J. Orthodont., Oral Surg. & Radiography*, 1923, ix, 170.
- Advantages of lingual appliances, when indicated, and the ideal age for their application in disocclusion cases. P. T. MEANEY. *Internat. J. Orthodont., Oral Surg. & Radiography*, 1923, ix, 167.
- Congenital perforate soft palate and double uvula, with repair of perforation. J. H. TRINDER. *J. Am. M. Ass.*, 1923, lxxx, 914.

- Notes on a short experiment in the treatment of oral sepsis. F. M. ADAMS. Rhode Island M. J., 1923, vi, 42.
- Arsphenamine treatment of spirochetic gingivitis. J. A. KOLMER. Am. J. Clin. Med., 1923, xxx, 243.
- Infection and inflammation of the investing tissues of the teeth and their relation to the maxillary sinus. G. B. BROWN. Kentucky M. J., 1923, xxi, 149. [8]
- Chronic inflammation of the parotid. K. VOGELER. Arch. f. klin. Chir., 1923, cxxii, 655.
- A feather in the parotid duct. J. DUNDAS-GRANT. Brit. M. J., 1923, i, 416.
- Papillary cystadenoma of the parotid region. S. MAZZA and A. CASSINELLI. Rev. Assoc. méd. argent., 1922, xxv, 967.
- Deformities of the lips and their correction. P. CATTANI. Schweiz. med. Wchnschr., 1923, liii, 85.
- Harelip. W. E. LADD. Boston M. & S. J., 1923, clxxxviii, 270.
- The surgical treatment of cancer of the lip. R. R. VELLEGAS. Semana méd., 1923, xxx, 398.
- The surgical treatment of carcinoma of the lower lip. W. E. LEIGHTON. J. Missouri State M. Ass., 1923, xx, 90.
- Acute pyogenic infections of the jaws not associated with pulpless teeth. L. R. CAHN. Dental Cosmos, 1923, lxxv, 227.
- A case of syphilis of the mandible complicated by noma. G. PICOT and C. RUPPE. Presse méd., Par., 1923, xxxi, 288.
- Pemphigus of the mouth and throat. J. COLEMAN. Med. Times, 1923, li, 72.
- Cancer of the mouth and jaws. V. P. BLAIR and M. J. MOSKOWITZ. Internat. J. Orthodont., Oral Surg. & Radiography, 1923, ix, 218.
- Lingual goiter. F. H. LAHEY. Surg., Gynec. & Obst., 1923, xxxvi, 395.
- Lymphangioma circumscriptum of the tongue. G. PETIT. Proc. Roy. Soc. Med., Lond., 1923, xvi, Sect. Dermatol., 58.
- Various methods of treating cancer of the tongue. J. BERRY, W. H. CLAYTON-GREEN, A. E. H. PINCH and others. Lancet, 1923, cciv, 438. [8]
- A case of adamantinoma. H. WINTER. Arch. f. klin. Chir., 1923, cxxii, 567.

Throat

- Typical quinsy in an infant. F. W. GRAEF. N. York M. J. & Med. Rec., 1923, cxvii, 267.
- Report of a case of safety pin in the trachea. R. S. MOORE. Laryngoscope, 1923, xxxiii, 212. [9]
- Maintaining the patency of the larynx after laryngofissure in the operative correction of bilateral paralysis and in other cases. A. RÉTHI. Ztschr. f. Laryngol., Rhinol., etc., 1922, xi, 184.
- Non-diphtheritic laryngeal stenosis resulting from an acute infectious disease. F. MICHELETTI. Riforma med., 1923, xxxix, 245.

Neck

- Tuberculous cervical adenitis in children. J. S. STONE. Boston M. & S. J., 1923, clxxxviii, 272.
- Hydatid cyst of the neck. M. ROSSO. Semana méd., 1923, xxx, 412.
- A note on the carotid gland. DUBECQ, MASSÉ, and LACOSTE. J. de med. de Bordeaux, 1923, xcv, 205.
- Enlarged thymus—clinical findings in a series of cases. J. P. PARSONS. Med. Clin. N. Am., 1923, vi, 1319.
- Primary tumor of the thymus associated with tuberculosis. H. C. SWEANY. J. Am. M. Ass., 1923, lxxx, 754.

The relation between the thyroid and intestinal movements. G. DEUSCH. Verhandl. d. deutsch. Gesellsch. f. inn. Med., 1922, 373.

The influence of intestinal bacteria upon the thyroid gland. D. J. HARRIS. Brit. M. J., 1923, i, 553. [9]

Thyroid instability. A. KORNDORFER. Hahneman. Month., 1923, lviii, 157.

The diagnosis and treatment of thyroid disease as controlled by the metabolic rate. A. H. ROWE. Endocrinology, 1923, vii, 256.

The value of basal metabolism studies in thyroid disease. J. H. SMITH. Virginia M. Month., 1923, xlix, 708.

The value of basal metabolism in the diagnosis and treatment of cretinism. F. B. TALBOT and M. E. MORIARTY. Am. J. Dis. Child., 1923, xxv, 185.

Observations of the cardiovascular system in thyroid disease. W. J. KERR and G. C. HENSEL. Arch. Int. Med., 1923, xxxi, 398.

Clinical studies in functional disturbances. The recognition and treatment of hypothyroidism. A. P. MILLET and B. D. BOWEN. N. York State J. M., 1923, xxiii, 94.

Substernal thyroid with bilateral laryngeal paralysis. L. HUBERT. J. Am. M. Ass., 1923, lxxx, 842.

Interthoracic goiter—case report. W. D. HAINES. Cincinnati J. M., 1923, iv, 40.

Simple goiter as a result of iodine deficiency: preliminary paper. J. F. McCLENDON and A. WILLIAMS. J. Am. M. Ass., 1923, lxxx, 600.

Iodine therapy in endemic goiter and its history. E. BIRCHER. Schweiz. med. Wchnschr., 1922, lii, 713. [10]

Acute yellow atrophy associated with hyperthyroidism. W. J. KERR and G. Y. RUSK. Med. Clin. N. Am., 1922, vi, 445. [10]

Cystic tumors of the thyroid. J. L. DECOURCY. Cincinnati J. M., 1923, iv, 29.

Intratracheal struma. L. PUHR. Beitr. z. path. Anat. u. z. allg. Path., 1922, lxx, 474.

Studies of Graves' syndrome and the involuntary nervous system. L. KESSEL, C. C. LIEB, and H. T. HYMAN. Am. J. M. Sc., 1923, clxv, 384.

Studies of Graves' syndrome and the involuntary nervous system. I. Thyroid enlargement in individuals without sympatometric manifestations. L. KESSEL and H. T. HYMAN. Am. J. M. Sc., 1923, clxv, 387.

Studies of exophthalmic goiter and the involuntary nervous system. III. A study of fifty consecutive cases of exophthalmic goiter. L. KESSEL, C. C. LIEB, H. T. HYMAN, and H. LANDE. Arch. Int. Med., 1923, xxi, 433. [10]

The relative value of surgery and the roentgen ray in the treatment of hyperthyroidism. E. P. RICHARDSON. J. Am. M. Ass., 1923, lxxx, 820.

Further observations on the roentgen-ray treatment of toxic goiter. J. H. MEANS and G. W. HOLMES. Arch. Int. Med., 1923, xxxi, 303.

Recurrent goiter. ENDERLEN and HITZLER. Beitr. z. klin. Chir., 1922, cxvii, 526. [10]

Metastatic so-called benign goiters: latent thyroid carcinoma producing metastases. E. DELANNOY and A. DHALLUIN. Arch. franco-belges de chir., 1922, xxv, 1047. [11]

Observations on thyroid gland implantation. N. AKAMATSU. Arch. f. path. Anat. etc., 1923, ccxi, 556.

Indications for operation in goiter. M. LEBSCHÉ. Muenchen. med. Wchnschr., 1923, lxx, 11.

Regional anæsthesia of the neck and upper extremity: a critical and complete review of methods. BRUNIN and VANDEPUT. Arch. franco-belges de chir., 1923, xxv, 1098. [11]

Surgery of the thyroid. T. A. CARTER. Am. J. Clin. Med., 1923, xxx, 169.

The calcium content of the blood of thyroidectomized animals. M. PARHON. *Endocrinology*, 1923, vii, 311.

The mortality rate following operations on the thyroid gland. C. H. MAYO and W. M. BOOTHBY. *J. Am. M. Ass.*, 1923, lxxx, 891.

Cyst of the epiglottis with unusual features. H. M. TAYLOR. *N. York M. J. & Med. Rec.*, 1923, cxvii, 357. [11]

External cricoidynia: its control through the nasal ganglion. G. SLUDER. *J. Am. M. Ass.*, 1923, lxxx, 690.

Neoplasms of the larynx. C. M. ROBERTSON. *Illinois M. J.*, 1923, xliii, 210.

Operation of total laryngectomy for the cure of intrinsic cancer of the larynx. J. E. McKENTY. *Ann. Otol., Rhinol. & Laryngol.*, 1922, xxxi, 1101. [11]

SURGERY OF THE CHEST

Chest Wall and Breast

A singular abscess of the costal cartilages. H. HARTUNG. *Zentralbl. f. Chir.*, 1923, i, 333.

Radical operation for chronic empyema. C. EGGERS. *Ann. Surg.*, 1923, lxxvii, 327. [13]

Sudden death following thoracentesis. E. S. DuBRAY. *Am. J. M. Sc.*, 1923, clxv, 357. [14]

A report on twelve cases of postoperative abscess of the lung and two cases of postoperative pneumonia. H. L. BARNES. *Rhode Island M. J.*, 1923, vi, 35.

Diffuse mammary hypertrophy at puberty. A. HEYN. *Zentralbl. F. Gynaek.*, 1923, xlvii, 263.

Plastic mastitis in cases of cancer of the stomach: mastitis carcinomatosa. H. STAHR. *Ztschr. f. Krebsforsch.*, 1922, xix, 231. [15]

Rivalon treatment of mastitis. P. ROSENSTEIN. *Zentralbl. f. Gynaek.*, 1923, xlvii, 86.

Traumatic fat necrosis of the breast. I. COHEN. *J. Am. M. Ass.*, 1923, lxxx, 770.

Teratoid mixed tumors of the breast. M. A. McIVER. *Ann. Surg.*, 1923, lxxvii, 354.

The etiology of cancer of the breast in the male. A. MUELLEDER. *Arch. f. klin. Chir.*, 1922, cxx, 686. [15]

The prognosis in cancer of the breast. H. C. SALTZSTEIN. *Am. J. M. Sc.*, 1923, clxv, 424.

The value of roentgenography before operating upon breast malignancy. J. W. FRANK. *Hahneman. Monh.*, 1923, lviii, 145.

Radiation therapy in breast cancer. G. E. PFAHLER. *Fortschr. a. d. Geb. d. Roentgenstrahlen*, 1923, xxx, 46.

High-voltage therapy in the treatment of carcinoma of the breast. J. ASPRAY. *Northwest Med.*, 1923, xxii, 85.

Trachea, Lungs, and Pleura

A case of foreign bodies in the trachea. F. KNAB. *Deutsche med. Wchnschr.*, 1923, xlix, 149.

Sudden death from blocking of the air passages by a caseous gland in a boy of 9 years. F. J. POYNTON and W. WILLIAMS. *Brit. J. Child. Dis.*, 1923, xx, 28.

Foreign bodies in the air and food passages. C. A. S. RIDOUT. *Brit. M. J.*, 1923, i, 413.

Tracheotomy in an infant. E. THORP. *Lancet*, 1923, cciv, 594.

Acute suppurative pleurisy: an analysis of ninety-four cases. C. H. PECK and H. W. CAVE. *Surg., Gynec. & Obst.*, 1923, xxxvi, 357. [15]

The technique of pleural puncture. HAMMER. *Muenchen. med. Wchnschr.*, 1923, lxx, 79.

Primary cancer of the pleura in man and wife. A. JOSEFSON. *Acta med. Scand.*, 1923, supp. iii, 159.

Four cases of bronchoscopy, including two of lung abscess. R. H. CRAIG. *Canadian M. Ass. J.*, 1923, xiii, 185.

Abscess of the lung occurring after tonsillectomy, with a case report. J. R. PEABODY. *Kentucky M. J.*, 1923, xxi, 121.

Abscess of the lung. N. W. GREEN. *Ann. Surg.*, 1923, lxxvii, 370.

A case of aspergillosis of the lung. F. GARDEY. *Semana méd.*, 1923, xxx, 390.

Artificial pneumothorax. L. VON MURALT. *Berlin: Springer*, 1922.

Pleuroscopy and division of intrapleural adhesions in the production of therapeutic pneumothorax. C. A. PIQUET and A. GIRAUD. *Presse méd., Par.*, 1923, xxxi, 266.

A detail of technique in Forlanini's method of producing pneumothorax. M. BALSAMO. *Policlin., Rome*, 1923, xxx, sez. prat., 399.

Artificial pneumothorax: its application to cases other than those of pulmonary tuberculosis. J. J. PERKINS and L. S. T. BURRELL. *Lancet*, 1923, cciv, 478. [16]

Phrenicotomy as a therapeutic measure in pulmonary tuberculosis. H. ALEXANDER. *Klin. Wchnschr.*, 1923, ii, 404.

Surgical treatment in pulmonary tuberculosis. E. RANZI. *Wien. med. Wchnschr.*, 1922, lxxii, 1668.

Surgery in the treatment of pulmonary tuberculosis. C. RIVIÈRE and W. H. C. ROMANIS. *Lancet*, 1923, cciv, 531. [16]

The surgical treatment of tuberculosis of the lungs. F. SAUERBRUCH. *Wien. med. Wchnschr.*, 1922, lxxii, 1965. [17]

Heart and Pericardium

Calculus pericarditis diagnosed by X-ray examination. L. CHEINISSE. *Presse méd., Par.*, 1923, xxxi, supp. 493.

Pneumococcal pericarditis. S. F. McDONALD. *Med. J. Australia*, 1923, i, 291.

The intracardiac injection of adrenalin. C. BODON. *Lancet*, 1923, cciv, 586.

Œsophagus and Mediastinum

Extraction through the stomach of a foreign body wedged in the œsophagus. W. ANSCHUTZ. *Therap. d. Gegenw.*, 1923, lxiv, 6.

A wire ring in the œsophagus. E. G. GILL. *Laryngoscope*, 1923, xxxiii, 213. [17]

Œsophageal diverticulum, retrosternal goiter, and bleeding gastric ulcer in the same patient. HABERER. *Arch. f. klin. Chir.*, 1923, cxxii, 789.

A case of diverticulum of the œsophagus. L. C. KINGMAN. *Boston M. & S. J.*, 1923, clxxxviii, 361.

Œsophageal diverticula. F. H. LAHEY. *Boston M. & S. J.*, 1923, clxxxvii, 355. [17]

The treatment of diverticulum of the œsophagus. C. H. MAYO. *Ann. Surg.*, 1923, lxxvii, 267. [18]

The metastasizing tendency of œsophagus carcinoma. G. F. HELSLEY. *Ann. Surg.*, 1923, lxxvii, 272.

New details concerning the mechanics of the physiological tube, the œsophagus, and the physical tube, a rational gastroscope of a new type. W. STERNBERG. *Zentralbl. f. Chir.*, 1923, i, 172.

Total œsophagoplasty. JANKOWSKI. *Eesti arst*, 1922, i, 246. [18]

Idiopathic dilatation of the œsophagus associated with mega-œsophagus. C. CASTELLI. *Riforma med.*, 1923, xxxix, 270.

X-ray examination of the posterior mediastinum. K. SCHOELLER. *Roentgenologia*, 1922, i, 19.

Hodgkin's disease of the mediastinal glands and lymphosarcoma. L. M. WARFIELD. *Med. Clin. N. Am.*, 1923, vi, 1097.

Miscellaneous

Intrathoracic catastrophes simulating the acute abdomen. J. H. PRINGLE. *Lancet*, 1923, cciv, 279. [18]

New growths within the chest: X-ray diagnosis. S. B. CHILDS. *Am. J. Roentgenol.*, 1923, x, 175. [18]

New growths within the chest. J. N. HALL. *Am. J. Roentgenol.*, 1923, x, 182. [18]

SURGERY OF THE NERVOUS SYSTEM

Brain and Its Coverings; Cranial Nerves

Brain injuries without skull fractures. D. H. MORGAN. *Ohio State M. J.*, 1923, xix, 157. [21]

Observations regarding the condition of traumatic cerebral oedema. W. SHARPE. *Am. J. M. Sc.*, 1923, clxv, 405.

Late result of craniectomy for depression causing hemiplegia. C. I. ALLENDE. *Rev. Assoc. méd. argent.*, 1922, xxxv, 988.

The use of air in the diagnosis of intracranial lesions: an illustrative case. F. C. GRANT. *Surg. Clin. N. Am.*, 1923, iii, 289. [21]

Aerocele of the brain, with report of cases. A. D. McCANNEL. *Laryngoscope*, 1923, xxxiii, 189. [21]

Intracranial aérocele. W. WHEELER and E. C. SMITH. *Brit. M. J.*, 1923, i, 560.

Epileptic crises from an exostosis of the inner table of the frontal bone. P. MAURIAC. *J. de med. de Bordeaux*, 1923, xcv, 162.

Roentgen rays and epilepsy. M. FRAENKEL. *Zentralbl. f. Gynaek.*, 1923, xlvii, 265.

Roentgenological observations on the treatment of epilepsy with intensive irradiation of one adrenal gland. H. KURTZAHN. *Arch. f. Psychiat. u. Nervenkrankh.*, 1922, lxvi, 792. [22]

Surgical reconstruction of the anatomical craneocerebral layers in the treatment of traumatic Jacksonian epilepsy. G. GIORGI. *Policlin.*, Rome, 1923, xxx, sez. chir., 144.

The surgical treatment of epilepsy. L. PUSSEP. *Klin. Wchnschr.*, 1922, i, 2142. [22]

The results of palliative trephination in brain pressure. ANSCHUTZ. *Deutsche med. Wchnschr.*, 1922, xlvii, 1406. [22]

Ventriculotomy and puncture of the floor of the third ventricle. W. J. MIXTER. *Boston M. & S. J.*, 1923, clxxxviii, 277. [23]

Brain tumors, with exhibition of specimen, case report. L. W. FRANK. *Kentucky M. J.*, 1923, xxi, 159.

A diagnosed case of dermoid cyst of the brain. G. SCHUSTER. *Gyógyászat*, 1923, 44.

Tumor in the cisterna magna. J. P. MARTIN and J. G. GREENFIELD. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Neurol., 32. [23]

Some of the surgical problems in the management of pituitary disorders. C. H. FRAZIER. *Surg. Clin. N. Am.*, 1923, iii, 33. [23]

Hypophyseal duct tumor in a child of ten. T. H. LAMMAN and L. W. SMITH. *Surg., Gynec. & Obst.*, 1923, xxxvi, 361. [24]

Familial corpus striatum syndromes. L. A. HOAG. *Med. Clin. N. Am.*, 1923, vi, 1361.

The frontal reflex accompanying certain cerebral affections. I. HOLMGREN. *Acta med. Scand.*, 1923, lvii, 616.

A glioma involving the orbit. C. J. ADAMS. *Am. J. Ophth.*, 1923, vi, 222.

Lethargic encephalitis. *Collective Review. Med. Sc. Abst. & Rev.*, 1923, vii, 443.

A myoclonic form of epidemic encephalitis. L. J. THOMPSON and M. E. MORSE. *Med. Herald*, 1923, xlii, 78.

Dry brain versus wet brain. C. E. REYNOLDS. *California State M. J.*, 1923, xxi, 106.

Spontaneous meningeal hæmorrhage. T. FRACASSI. *Rev. méd. d. Rosario*, 1922, xxi, 395. [24]

The late results of meningeal hæmorrhage of the newly born. H. C. CAMERON and A. A. OSMAN. *Brit. M. J.*, 1923, i, 363.

A case of middle meningeal hæmorrhage. A. B. K. WATKINS. *Lancet*, 1923, cciv, 646.

Syphilitic basal meningo-encephalitis. H. RÔXO. *Brazil-med.*, 1923, xxxvii, 125.

Suboccipital meningocele successfully removed. J. LIVINGSTON. *Brit. M. J.*, 1923, i, 508.

Localized meningitis. A. LEVINSON. *Arch. Pediat.*, 1923, xl, 164.

A case of tuberculosis meningitis. W. E. GEORGE. *Med. Press*, 1923, n.s. cxv, 197.

Internal hæmorrhagic pachymeningitis in infancy: report of five cases. C. W. BURHANS and H. J. GERSTENBERGER. *J. Am. M. Ass.*, 1923, lxxx, 604.

The operative treatment of septic meningitis. H. L. MARTYN. *Lancet*, 1923, cciv, 485. [24]

A case of secondary carcinomatous infiltration of the pia arachnoid of the brain presenting exclusively ocular symptoms during life: meningitis carcinomatosa. F. M. R. WALSHE. *Brit. J. Ophth.*, 1923, vii, 113. [25]

Glycæmia and glycorrhachia. M. POLONOVSKI and E. DUHOT. *Presse méd.*, Par., 1923, xxxi, 60. [25]

Alternations in the currents and absorption of cerebrospinal fluid following salt administration. F. E. B. FOLEY. *Arch. Surg.*, 1923, vi, 587. [25]

Sugar in the cerebrospinal fluid. A preliminary report upon the quantitative estimation of sugar in the cerebrospinal fluid referable especially to epilepsy. C. D. HUMES. *J. Indiana State M. Ass.*, 1923, xvi, 94.

Roentgen treatment in rebellious trigeminal neuralgia. L. BORDONI. *L'Actinotherapie*, Naples, 1922, ii, 381. [26]

Peripheral Nerves

On the significance of the sequence and mode of development of symptoms as an aid to the diagnosis of multiple sclerosis in the early stages. W. B. CADAWALADER and J. W. MCCONNELL. *Am. J. M. Sc.*, 1923, clxv, 398.

Regeneration of the peripheral nerves in adults. M. SAITO. *Arb. a. d. neurol. Inst. d. Wiener Univ.*, 1922, xxiv, 85. [26]

Resection of posterior roots for gastric crisis. J. A. CALDWELL. *Cincinnati M. J.*, 1923, iv, 43.

Nerve anastomosis in parabiosis with rats. B. MORGURGO. *Klin. Wchnschr.*, 1923, ii, 129.

The treatment of spastic paralysis. A. S. B. BANKART. *Lancet*, 1923, cciv, 537.

A splint for median paralysis. W. MERCER. *Brit. M. J.*, 1923, i, 371.

Sympathetic Nerves

The effect of the ablation of the superior cervical sympathetic ganglia upon the continuance of life. M. L. MONTGOMERY. *Endocrinology*, 1923, vii, 74. [26]

The trophic function of the sympathetic nerves. F. BREUNING. *Klin. Wchnschr.*, 1923, ii, 67. [26]

Angiospasm in the pathogenesis of the vasomotor trophic neuroses: further experiences with peri-arterial sym-

pathectomy. F. BRUENING. *Deutsche med. Wchnschr.*, 1922, xlviii, 1572. [27]

Angioneuroses: operation by the Leriche-Bruening method. C. KREIBICH. *Klin. Wchnschr.*, 1923, ii, 337.

Observations on a case of peri-arterial sympathectomy. A. FLORESCU. *Clujul med.*, 1922, iii, 279. [28]

The etiology and treatment of perforating ulcer of the foot, with remarks on sympathectomy. M. KAPPIS. *Klin. Wchnschr.*, 1922, i, 2558.

SURGERY OF THE ABDOMEN

Abdominal Wall and Peritoneum

Delayed union in non-infected wounds about the umbilicus. A. S. BRINKLEY. *Virginia M. Month.*, 1923, xlix, 711.

The causes, repair, and management of cases of post-operative hernia. A. E. BENJAMIN. *Minnesota Med.*, 1923, vi, 178.

Traumatic hernia. S. S. GALE. *South. M. & S.*, 1923, lxxxv, 121.

Hernia from the employer's standpoint. R. J. GRAVES. *Boston M. & S. J.*, 1923, clxxxviii, 454.

Strangulated hernia in an infant. I. McNEIL. *Med. J. Australia*, 1923, i, 235.

Local and general anaesthesia in strangulated hernia. E. P. RICHARDSON. *Boston M. & S. J.*, 1923, clxxxviii, 446.

A sliding hernia, with the tube as the sliding organ. F. SEIBOLD. *Zentralbl. f. Gynaek.*, 1923, xlvii, 270.

Appendix as the content of a hernia on the left side. K. H. ERB. *Deutsche Ztschr. f. Chir.*, 1922, clxxvi, 379.

Inguinal hernia. J. T. BURRUS. *South. M. & S.*, 1923, lxxxv, 128.

The relation between oblique inguinal hernia and workmen's compensation laws. J. M. WAINWRIGHT. *Arch. Surg.*, 1923, vi, 605.

Recurrent inguinal hernia. M. BALADO. *Rev. Asoc. méd. argent.*, 1922, xxxv, 739.

Splitting the cord in indirect inguinal hernia. C. B. RIPLEY. *Illinois M. J.*, 1923, xliii, 223.

Operative treatment of very large irreducible hernia. W. DENK. *Deutsche Ztschr. f. Chir.*, 1922, clxxvi, 399.

Subcutaneous rupture of the rectus abdominis muscle and the epigastric artery. K. WOHLGEMUTH. *Arch. f. klin. Chir.*, 1923, cxvii, 649.

The differential diagnosis of tumor in the groin. DELBET. *Med. Press*, 1923, n.s. cxv, 193.

Subacute inguinal adenitis. F. DESTEFANO and R. F. VACCAREZZA. *Semana méd.*, 1923, xxx, 229.

Physiology and pathology of the peritoneum. E. RANZI. *Wien. med. Wchnschr.*, 1922, lxxii, 1479, 1547. [29]

Leucocytosis in hæmoperitoneum. V. GHIRON. *Policlin.*, Rome, 1923, xxx, sez. chir., 137.

Chronic subphrenic peritonitis. O. M. CHIARI. *Arch. f. klin. Chir.*, 1923, cxvii, 804.

In regard to the employment of ether in peritonitis. C. STIEDA. *Deutsche med. Wchnschr.*, 1922, xlviii, 1725.

Lymphaticostomy in peritonitis. W. A. COSTAIN. *Surg., Gynec. & Obst.*, 1923, xxxvi, 365. [29]

Gastro-Intestinal Tract

On the interrelation of certain general conditions with gastro-intestinal disorders. T. I. BENNETT. *Practitioner*, 1923, cx, 242.

The celluloid capsule: a means of determining the motility of the gastro-intestinal tract. J. BUCKSTEIN. *J. Am. M. Ass.*, 1923, lxxx, 621.

Progress in gastro-enterology. A. E. AUSTIN. *Boston M. & S. J.*, 1923, clxxxviii, 259.

Pneumoperitoneum in diseases of the digestive tract. V. SOLDEVILLA and J. M. SOLDEVILLA. *Med. Ibera*, 1923, xvii, 61.

Evaluation of the factor of spasticity in diseases of the digestive tract. J. KAUFMANN. *Mitt. a. d. Grenzgeb. d. Med. u. Chir.*, 1923, xxxvi, 96.

Is the stomach a focus of infection? N. KOPELOFF. *Med. Press*, 1923, n.s. cxv, 154. [29]

Diaphragmatic hernia of the stomach. P. L. FARINAS. *Am. J. Roentgenol.*, 1923, x, 187.

Review of the operative treatment of gastroptosis and its results. E. WEHNER and H. BOEKER. *Muenchen. med. Wchnschr.*, 1923, lxx, 52.

Gastroptosis and its operative cure by simple plication of the stomach. PUST. *Muenchen. med. Wchnschr.*, 1923, lxx, 15.

My improved gastroscope. H. ELSNER. *Deutsche med. Wchnschr.*, 1923, xlix, 253.

A method for the opaque-meal examination of the stomach. S. G. SCOTT. *Arch. Radiol. & Electrotherapy*, 1923, xxvii, 304.

Fractional gastric analysis. W. D. ROSE. *J. Arkansas M. Soc.*, 1923, xix, 187.

The modification of gastric function by means of drugs. T. I. BENNETT. *Brit. M. J.*, 1923, i, 366. [29]

Observations on the effect of histamine on human gastric secretion. A. R. MATHESON and S. E. AMMON. *Lancet*, 1923, cciv, 482. [30]

The interpretation of certain gastro-enteric symptoms. H. M. EBERHARD. *Hahneman. Month.*, 1923, lviii, 152.

Diverticulum of the stomach. E. E. TUPPER. *Wisconsin M. J.*, 1923, xxi, 442.

Syphilis of the stomach. M. PINARD. *Bruxelles méd.*, 1923, iii, 380. [30]

The diagnosis and treatment of gastric syphilis. W. A. BRAMS and E. ANTOINE. *U. S. Naval M. Bull.*, 1923, xviii, 303.

The surgical treatment of pylorospasm in nursing infants. HEILE. *Klin. Wchnschr.*, 1923, ii, 262.

A case of unusual pyloric obstruction and alkalosis without gastric tetany. J. B. YOUMANS. *Med. Clin. N. Am.*, 1923, vi, 1261.

The occurrence, diagnosis, and medical treatment of hypertrophic stenosis of the pylorus. J. W. AMESSE. *Colorado Med.*, 1923, xx, 68.

The treatment of congenital hypertrophic pyloric stenosis: medicine versus surgery. L. FINDLAY. *Brit. J. Child. Dis.*, 1923, xx, 1.

The surgical treatment of congenital hypertrophic pyloric stenosis. G. B. PACKARD. *Colorado Med.*, 1923, xx, 73.

Pyloric stenosis due to corrosive acids and lye. E. ELSCHER. *Zentralbl. f. Chir.*, 1923, i, 165.

- The origin of "hunger-pains" and their significance in the diagnosis of ulcer. H. SCHÜR. *Wien. klin. Wchnschr.*, 1922, xxxv, 684. [31]
- An early symptom of superficial ulcer of the stomach. A. NAGY. *Roentgenologia*, 1922, i, 36.
- The possibility of diagnosing peptic ulcer and its localization from direct and indirect signs. H. ZOEPFFEL. *Med. Klin.*, 1923, xix, 231.
- Perforated ulcer: report of a case. G. B. LEMMON. *J. Am. M. Ass.*, 1923, lxxx, 771.
- Peptic ulcer. J. M. WILLIS. *Nebraska State M. J.*, 1923, viii, 95.
- The surgical aspect of gastric ulcer. W. H. C. ROMANIS. *Practitioner*, 1923, cx, 224.
- Death after operation for gastric ulcer. J. DABROWSKA. *Polska gaz. lek.*, 1922, i, 971.
- Leiomyoma of the stomach, with the report of a case. E. L. HUNT. *Boston M. & S. J.*, 1923, clxxxviii, 349. [31]
- The search for autolytic products applied to the early diagnosis of gastric cancer. F. RAMOND and P. ZIZINE. *Bull. et mém. Soc. méd. d. hôp. de Par.*, 1923, xlvii, 106. [31]
- The importance of radiology in gastric cancer. F. Z. GUERRINI. *Semana méd.*, 1923, xxx, 364.
- Chemical changes in the blood of the dog after pyloric obstruction. R. L. HADEN and T. G. ORR. *J. Exper. Med.*, 1923, xxxvii, 377. [32]
- The possible risk in manipulation of the diseased stomach. G. B. LEMMON. *J. Missouri State M. Ass.*, 1923, xx, 100.
- Constriction of the afferent limb between gastro-enterostomy and entero-anastomosis. F. EHRLICH. *Arch. f. Verdauungsk.*, 1922, xxx, 219.
- The diagnosis of contraction of the mesentery. E. SCHILL. *Deutsche med. Wchnschr.*, 1923, xlix, 179.
- Tumor of the mesentery. M. SILHOL. *Arch. franco-belges de chir.*, 1923, xxvi, 271.
- The treatment of chronic intestinal stasis by colloidal kaolin. A. C. JORDAN. *Lancet*, 1923, cciv, 432.
- Incarcerated volvulus without retrograde nutritional disturbance of the constricting loop. E. PÓLYA. *Zentralbl. f. Chir.*, 1923, i, 219.
- A case of invagination of the intestine. H. THORBORG. *Ugesk. f. Læger*, 1922, lxxxiv, 1716.
- Intussusception with left-sided mass. E. D. TWYMAN. *J. Missouri State M. Ass.*, 1923, xx, 100.
- Intestinal occlusion resulting from strangulation through a defect in the mesentery. BORBE. *Deutsche Ztschr. f. Chir.*, 1922, clxxv, 454.
- A fatal case of acute intestinal obstruction resulting from traumatic diaphragmatic hernia. B. H. SLATER and C. MACKENZIE. *Lancet*, 1923, xxiv, 484.
- The typical forms of late obstruction of the small intestine following suppurative appendicitis. A. FISCHER. *Gyógyászat*, 1922, xlix, 664. [32]
- Two new cases of stricture of the small intestine with pernicious anemia. *Ugesk. f. Læger*, 1922, lxxxiv, 1401. [32]
- Chemical changes in the blood of the dog after intestinal obstruction. R. L. HADEN and T. G. ORR. *J. Exper. Med.*, 1923, xxxvii, 365. [32]
- The therapeutic value of vomiting in intestinal obstruction. C. SYMONDS. *Practitioner*, 1923, cx, 205. [33]
- Death from intestinal obstruction. S. PRINGLE. *Brit. M. J.*, 1923, i, 512.
- Three cases of acute inflammatory tumor of the bowel. K. ANDRASSY and K. HIMMELREICHER. *Zentralbl. f. Chir.*, 1923, i, 302.
- A technique of end-to-side intestinal anastomosis. J. C. BLOCH. *J. de chir.*, 1923, xxi, 294.
- Duodenal motility: radiographic observations following the direct injection of barium into the human duodenum. H. WHEELON. *J. Am. M. Ass.*, 1923, lxxx, 615.
- Intestinal obstruction by gall-stones. C. R. ABBOTT and E. L. HUNT. *Boston M. & S. J.*, 1923, clxxxviii, 390. [33]
- Chronic arteriomesenteric obstruction of the duodenum. H. C. TINKHAM. *Boston M. & S. J.*, 1923, clxxxviii, 397. [33]
- The normal and pathologic duodenal bulb in the X-ray picture. J. LORENZ. *Fortschr. a. d. Geb. d. Roentgenstrahlen*, 1923, xxx, 96.
- Ulcer of the duodenum: inflammation and icterus. H. ZOEPFFEL. *Zentralbl. f. Chir.*, 1923, i, 297.
- The mechanical origin of duodenal ulcer. C. ROHDE. *Klin. Wchnschr.*, 1923, ii, 394.
- The roentgen diagnosis of duodenal ulcer. A. PLENK. *Wien. klin. Wchnschr.*, 1923, xxxvi, 145.
- The diagnosis of duodenal ulcer by means of a rapidly made series of roentgenograms. A. CARRIÉ and J. KELLER. *Presse méd.*, Par., 1923, xxxi, 131. [33]
- Roentgen diagnosis in diseases of the duodenum. E. SAUPE. *Mitt. a. d. Grenzgeb. d. Med. u. Chir.*, 1922, xxxv, 555. [32]
- The treatment of duodenal ulcer. B. MOYNIHAN. *Lancet*, 1923, cciv, 631.
- The technique of duodenal detachment. VAUTRIN and FOURCHE. *Arch. franco-belges de chir.*, 1923, xxvi, 193.
- Colloid carcinoma of Vater's papilla: a clinical and anatomo-pathological study. A. ANGELI. *Riforma med.*, 1923, xxxix, 28. [34]
- Peptic ulcer of the jejunum and pyloric exclusion. HABERER. *Arch. f. Verdauungsk.*, 1923, xxx, 275.
- Roentgen-ray treatment of extensive ileocaecal tuberculosis. H. REH. *Zentralbl. f. Chir.*, 1922, xlix, 1661. [34]
- Roentgen observations on the fate of intestinal irrigations of different quantities, especially from the therapeutic viewpoint. H. LOSSEN. *Fortschr. a. d. Geb. d. Roentgenstrahlen*, 1922, xxx, 48. [34]
- Secondary (acquired) megacolon. R. R. ROGERS. *Ohio State M. J.*, 1923, xix, 172. [35]
- Pelvic megacolon: colectomy after invagination of the colon into the rectum. J. RABÈRE. *Bruxelles méd.*, 1923, iii, 281. [35]
- The roentgenological demonstration of multiple diverticula of the large intestine. J. T. CASE. *Fortschr. a. d. Geb. d. Roentgenstr.*, 1923, xxx, 43.
- Amoebic colitis with perforation. J. W. SHUMAN and D. CRUKSHANK. *Med. Herald*, 1923, xlii, 93.
- The surgical treatment of chronic ulcerative colitis. H. B. STONE. *Ann. Surg.*, 1923, lxxvii, 293.
- Intestinal perforation of typhoid origin; encysted peritonitis; laparotomy; recovery. E. CHAUVIN. *Arch. franco-belges de chir.*, 1923, xxvi, 275.
- Flexure stenoses. S. WIDERE. *Medicinske Rev.*, 1922, xxxix, 457.
- Pathogenic ptosis of the right colon. E. P. QUAIN. *Arch. Surg.*, 1923, vi, 638.
- Fixation of the cæcum in chronic intussusception. J. B. Alexander. *Brit. M. J.*, 1923, i, 508.
- A case of developmental alterations of the cæcum and pericolic membrane. F. ALZONA and A. VALENTI. *Riforma med.*, 1923, xxxix, 49. [35]
- Non-tuberculous inflammation of the cæcum: report of case. F. G. KOLOUCH. *Nebraska State M. J.*, 1923, viii, 106.
- Physiology and pathology of the appendix. H. PÉREZ ORTIZ. *Arch. de med., cirug. y especial.*, 1923, x, 568.
- Nervous disturbances of appendiceal origin. POLNARU-CAPLESCU, CONSTANIN, and DEMATRU. *Spitalul*, 1922, xlii, 311.

The appendix and its rôle as a masquerader. H. FOWLER. *Med. Times*, 1923, li, 57.

An unusual case of appendicitis. D. C. SCOTT. *J. Roy. Army Med. Corps, Lond.*, 1923, xl, 212.

Appendicitis due to the leishmania. G. L. HARTMANN-KEPPEL. *Presse méd., Par.*, 1923, xxxi, 291.

Appendicitis and the weather. P. FORSTER. *Beitr. z. klin. Chir.*, 1923, cxxviii, 377.

Appendicitis from a surgical standpoint. F. KAREWSKI. *Berlin: Urban und Schwarzenberg*, 1922.

A case of submucous appendicular abscess of the head of the cæcum. A. SZENES. *Arch. f. klin. chir.*, 1922, cxxii, 12.

The treatment of appendicitis with complications. E. O. SCHMIDT. *Deutsche Ztschr. f. Chir.*, 1922, clxxv, 213. [36]

The treatment of ruptured appendix; illustrative cases. E. H. GREENE. *J. Med. Ass. Georgia*, 1923, xii, 92.

Carcinoma of the appendix. A. S. JACKSON. *Arch. Surg.*, 1923, vi, 653. [36]

Experimental investigation of volvulus of the sigmoid flexure. A. HINTZE. *Arch. f. klin. Chir.*, 1922, cxxi, 280.

Synergistic analgesia in rectal operations. J. F. SAPHIR. *N. York M. J. & Med. Rec.*, 1923, cxvii, 351.

Some factors in the treatment of extensive anorectal fistula. L. J. HIRSCHMAN. *Am. J. Surg.*, 1923, xxxvii, 56.

For the treatment of anal fistula. H. SIEBEN. *Med. Klin.*, 1922, xviii, 1641.

Hæmorrhoids. D. ZUCKERMAN. *Med. Times*, 1923, li, 70.

The injection treatment of hæmorrhoids. W. A. HINCKLE. *Illinois M. J.*, 1923, xliii, 217.

Liver, Gall-Bladder, Pancreas, and Spleen

Functional liver tests; an experimental study. V. R. DEAKIN and E. A. GRAHAM. *Surg., Gynec. & Obst.*, 1923, xxxvi, 348. [37]

Methods of investigating hepatic insufficiency. L. ORTEGA. *Arch. brasil. de med.*, 1923, xiii, 290.

The value of laboratory tests in diseases of the liver and pancreas. W. L. BROWN. *Brit. M. J.*, 1923, i, 461.

Rupture of the liver; tamponing with omentum; cure. A. ROSENBERGER. *Orvosi hetil.*, 1922, lxvi, 382.

Hepatitis and cholecystitis of intestinal origin. M. BRULÉ and H. GARBAN. *Presse méd., Par.*, 1923, xxxi, 205.

Primary amœbic hepatic abscess. O. E. ADORNI. *Semana méd.*, 1923, xxx, 433.

Twenty-two of amœbic abscess of the liver treated with emetine. HARTMANN-KEPPEL. *Rev. de chir., Par.*, 1923, lxi, 89. [37]

Twenty-two cases of amœbic abscess of the liver: treatment with emetine. HARTMANN-KEPPEL. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 216. [37]

Portal pyæmia secondary to umbilical infection. G. B. WHITE. *Brit. M. J.*, 1923, i, 373.

The collateral circulation of the portal system from a surgical standpoint. E. AIEVOLI. *Riforma med.*, 1923, xxxix, 250.

Primary carcinoma of the liver. B. J. CLAWSON and V. S. CABOT. *J. Am. M. Ass.*, 1923, lxxx, 909.

Liver abscess; report of 100 operations. A. I. LUDLOW. *Surg., Gynec. & Obst.*, 1923, xxxvi, 336.

Rupture of the liver; with report of a case in which autotransfusion was employed. C. S. WHITE. *Surg., Gynec. & Obst.*, 1923, xxxvi, 343.

A substitute for Kehr's hepatic drainage. R. AERENS. *Zentralbl. f. Chir.*, 1923, i, 169.

Studies on the total bile. I. The effect of operation, exercise, hot weather, relief of obstruction, intercurrent disease, and other normal and pathological influences.

P. D. MCMASTER, G. O. BROWN, and P. ROUS. *J. Exper. Med.*, 1923, xxxvii, 395.

Studies on the total bile. II. The relation of carbohydrates to the output of bile pigment. P. ROUS, G. O. BROWN, and P. D. MCMASTER. *J. Exper. Med.*, 1923, xxxvii, 421.

Pigment metabolism and the Van den Berg test to differentiate obstructive and non-obstructive jaundice: with five case reports. H. W. JONES. *Med. Clin. N. Am.*, 1923, vi, 1089. [38]

Traumatic ruptures of the bile passages. H. RUDBERG. *Upsala Laekaref. Foerh.*, 1922, xxvii, 223. [38]

Primary cancer of the bile passages. V. DIMITRIN. *Spitalul*, 1922, xlii, 325.

The identification of the common bile duct in the presence of an anomalous condition of the biliary passages.

J. HOMANS. *Surg., Gynec. & Obst.*, 1923, xxxvi, 417. [39]

White bile in the common duct. E. S. JUDD and J. H. LYONS. *Ann. Surg.*, 1923, lxxvii, 281. [39]

Idiopathic cysts of the common bile duct. K. ZIFF. *Arch. f. klin. Chir.*, 1923, cxxii, 615.

Implantation of biliary fistula into duodenum. F. H. LAHEY. *J. Am. M. Ass.*, 1923, lxxx, 893.

The sodium chloride content of the bile in affections of the gall-bladder and bile passages. L. KROECK. *Beitr. z. klin. Chir.*, 1923, cxxviii, 18.

Cholecystitis. O. W. RICE. *J. Oklahoma State M. Ass.*, 1923, xvi, 53.

Bile-duct anomaly as a factor in the pathogenesis of cholecystitis. M. G. SEELIG. *Surg., Gynec. & Obst.*, 1923, xxxvi, 331. [39]

A comparative study of two series of gall-bladder lesions. J. G. CLARK. *Surg., Gynec. & Obst.*, 1923, xxxvi, 323. [40]

Diverticulitis of the gall-bladder. G. K. ABBOTT. *Surg., Gynec. & Obst.*, 1923, xxxvi, 466.

The differential diagnosis of cholelithiasis and floating kidney. A. HENSZELMANN. *Roentgenologia*, 1922, i, 33.

Papilloma and adenoma of the gall-bladder. I. ABELL. *Ann. Surg.*, 1923, lxxvii, 276.

Gall-bladder drainage through the duodenum. HABERER. *Arch. f. klin. Chir.*, 1923, cxxii, 796.

Rational surgery in gall-bladder disease. L. W. GROVE. *J. Med. Ass. Georgia*, 1923, xii, 114.

Peripancratic fat necrosis resulting from the impaction of a gall-stone in the diverticulum of Vater. SCHOTT-MUELLER. *Deutsche med. Wchnschr.*, 1923, xlix, 112.

Chronic pancreatitis. P. L. MARSH. *Med. Clin. N. Am.*, 1923, vi, 1223.

Injuries to the spleen. E. H. POOL. *Boston M. & S. J.*, 1923, clxxxviii, 262. [40]

Spontaneous rupture of the spleen in typhoid fever. L. PLUME. *Arch. f. path. Anat. etc.*, 1923, ccxi, 505.

A case of splenomegaly with acholuric jaundice—diagnosis, treatment, and clinical cure. L. D. STERN. *Med. Clin. N. Am.*, 1923, vi, 1191.

Chronic septic splenomegaly. G. WARD. *Lancet*, 1923, cciv, 429.

Splenectomy for Banti's syndrome. A. GUTIÉRREZ. *Rev. Asoc. méd. argent.*, 1922, xxxv, 981.

Splenectomy. M. T. BOONEN. *Rev. Asoc. méd. argent.*, 1922, xxxv, 973.

Miscellaneous

Abdominal war wounds. F. P. MIRAVÉ. *Rev. españ. de cirug.*, 1922, iv, 419.

Gunshot wounds of the abdomen. L. W. TURNER. *J. Nat. M. Ass.*, 1923, xv, 36.

The importance of the early diagnosis of acute abdominal pain. J. D. ROGERS. *Virginia M. Month.*, 1923, xlix, 693.

The diagnostic importance of percussion pain in the abdomen. F. EHRLICH. *Deutsche med. Wchnschr.*, 1923, xlix, 149.

Application of Kappis' splanchnic anæsthesia to the pathogenetic and diagnostic interpretation of diseases of the upper abdomen. D. KULENKAMPPF. *Zentralbl. f. Chir.*, 1923, I, 208.

Pneumoperitoneum as an aid in diagnosis. J. J. PETERS. *J. Nat. M. Ass.*, 1923, xv, 33. [41]

The X-ray examination of subphrenic abscess for the determination of the site of operation. J. SOMMER. *Zentralbl. f. Chir.*, 1923, I, 215.

Prevention of peritoneal contamination in the drainage of abdominal abscesses. J. R. EASTMAN. *J. Am. M. Ass.*, 1923, lxxx, 833. [41]

A case of chylous ascites. GUYOT and ATHANÉ. *J. de med. de Bordeaux*, 1923, xcv, 168.

Torsion of the omentum. C. LEFEBURE. *Arch. franco-belges de chir.*, 1923, xxvi, 176.

Retroperitoneal tumor. A. GUTIÉRREZ. *Rev. Asoc. méd. argent.*, 1922, xxxv, 761.

Congenital tumors of the presacral region. N. SSAMARIN. *Arch. f. mikr. Anat.*, 1923, cxvii, 212.

Two interesting cases of abdominal tumors. I. SÁNCHEZ-COVISA and U. SEGOVIA. *Rev. españ. de cirug.*, 1923, v, 45.

Paravertebral and parasacral anæsthesia in operations on the abdomen and the urogenital system. F. VON DER HUETTEN. *Beitr. z. klin. Chir.*, 1923, cxxviii, 54.

Hill Billy abdominal surgery. J. G. CARPENTER. *Kentucky M. J.*, 1923, xxi, 128.

Lectures in operative surgery. Volume 3. Operations on the abdomen. A. BIER, H. BRAUN, and H. KUERMELL. *Leipsiz: Barth*, 1923.

SURGERY OF THE BONES, JOINTS MUSCLES, TENDONS

Conditions of the Bones, Joints, Muscles, Tendons, Etc.

Bone cells in relation to bone growth and repair. T. H. BAST. *Internat. J. Orthodont., Oral Surg. & Radiography*, 1923, ix, 187.

The dependence of growth in length on diseases of the bones and joints and function. F. J. LANGE. *Klin. Wchnschr.*, 1923, ii, 240.

Bone regeneration from the periosteum. The development of the interosseous ligament in the forearm and leg. B. MARTIN. *Arch. f. klin. Chir.*, 1922, cxx, 744. [42]

"Marble bones"—Albers-Schoenberg's disease. LOREY and REYE. *Fortschr. a. d. Geb. d. Roentgenstr.*, 1923, xxx, 35.

A case of multiple exostoses. A. DAVIS. *Proc. Roy. Soc. Med., Lond.*, 1923, xvi, Sect. Orthop., 26.

Typhoid osteitis and spondylitis. F. SABARZÈS. *Arch. de med., cirug. y especial.*, 1923, xi, 560.

Typhoid osteomyelitis. N. WINSLOW. *Ann. Surg.*, 1923, lxxvii, 319.

Myositis ossificans traumatica. D. CARLETON. *Boston M. & S. J.*, 1923, clxxxviii, 387.

Multiple myeloma, with report of a case. J. L. RAWLS. *Virginia M. Month.*, 1923, xlix, 723.

Changes in the epiphyseal union under abnormal mechanical requirements and their relation to rachitic changes. W. MUELLER. *Muenchen. med. Wchnschr.*, 1923, lxx, 44.

Late rachitis, the late rachitic origin of all deformities of growth and war osteomalacia. A. FROMME. *Ergebn. d. Chir. u. Orthop.*, 1922, xv, 203. [42]

Tumors of the parathyroid glands and their relation to osteomalacia. B. STRAUCH. *Frankfurt. Ztschr. f. Path.*, 1922, xxviii, 319.

The treatment of surgical tuberculosis with lecutyl. G. DEUTMANN. *Beitr. z. klin. Chir.*, 1923, cxxviii, 90.

The specificity of the local reaction after subcutaneous injection of tuberculin in questionable cases of surgical tuberculosis. C. MAU. *Deutsche Ztschr. f. Chir.*, 1923, clxxvii, 224.

The rapidity of blood sedimentation and urochromogen in surgical tuberculosis. H. HILAROWICZ. *Polska gaz. lek.*, 1922, i, 913.

A note on the phosphate content of the serum of cases of bone tuberculosis treated by heliotherapy. F. F. TISDALL and R. I. HARRIS. *Canadian M. Ass. J.*, 1923, xiii, 177.

Traumatism and osteo-articular tuberculosis. SÉNÈQUE. *Presse méd., Par.*, 1923, xxxi, 258.

Tuberculosis of glands and bones—heliotherapy and quartz-light therapy. D. M. COWIE. *Med. Clin. N. Am.*, 1923, vi, 1279.

The X-ray differential diagnosis of cystic bone tumors. F. HAENISCH. *Fortschr. a. d. Geb. d. Roentgenstrahlen*, 1923, xxx, 84.

Tumors of the parathyroid gland in cases of multiple giant-cell sarcomata of the osseous system. B. GUENTHER. *Frankfurt. Ztschr. f. Path.*, 1922, xxviii, 295. [43]

The influence of stimulation on chronic joint and muscle disease. A. ZIMMER and E. SCHULZ. *Muenchen. med. Muenchen. med. Wchnschr.*, 1923, lxx, 202.

Suppurative arthritis simulating acute appendicitis. J. A. BERRY. *Lancet*, 1923, cciv, 486.

Rheumatism of dental origin or streptococcic polyarthritis? G. R. GONZALO. *Siglo med.*, 1923, lxx, 279.

The intravenous therapy of rheumatoid arthritis. H. LAURIE. *Med. J. Australia*, 1923, i, 309.

Microscopic findings in pseudarthroses; the conditions of their development and their fate. S. MITTERSTILLER. *Arch. f. klin. Chir.*, 1923, cxxii, 939.

The theory of muscle atrophy on the basis of experimental investigations. A. W. MEYER. *Mitt. a. d. Grenzgeb. d. Med. u. Chir.*, 1922, xxv, 651. [44]

The origin of ischæmic contracture. A. SCHUBERT. *Deutsche Ztschr. f. Chir.*, 1922, clxxv, 381. [44]

Ischæmic paralysis. H. A. T. FAIRBANK. *Proc. Roy. Soc. Med., Lond.*, 1923, xvi, Sect. Orthop., 11.

Atrophic conditions contrasted with muscular wasting from emaciation. B. R. TUCKER. *South. M. J.*, 1923, xvi, 176.

Injury to the epiphysis of the left acromion process. P. B. ROTH. *Proc. Roy. Soc. Med., Lond.*, 1923, xvi, Sect. Orthop., 14.

Acute subacromial and subdeltoid bursitis: clinical picture, etiology, and treatment. H. F. WOLF. *Am. J. Surg.*, 1923, xxxvii, 59. [45]

Congenital deformity of the upper limbs and feet. R. C. ELSLIE. *Proc. Roy. Soc. Med., Lond.*, 1923, xvi, Sect. Orthop., 13.

Periosteal sarcoma of the humerus. A. J. SCOTT, H. FOWLER, and G. D. MANER. *Arch. Pediat.*, 1923, xl, 189.

Avulsion of the supraspinatus tendon. C. H. BUCHOLZ. *Arch. f. klin. Chir.*, 1922, cxxi, 255.

Rupture of the biceps flexor cubiti tendon. N. A. LUDINGTON. *Ann. Surg.*, 1923, lxxvii, 358.

- Dupuytren's contraction of the palmar fascia. A. H. TUBBY. Practitioner, 1923, cx, 214.
- Report of a case of Madelung's deformity. G. M. BROWN. Med. Clin. N. Am., 1923, vi, 1313.
- Suppurative osteomyelitis of the left side of the pelvis. I. P. LEVI. Am. J. Roentgenol., 1923, x, 208.
- The tragedy of a sacral periosteal sarcoma. F. ROEDER. Am. J. Obst. & Gynec., 1923, v, 266.
- The relation of sciatica to the sacro-iliac joint. J. COWEN. Brit. M. J., 1923, i, 372. [46]
- Sacro-iliac arthrosis obliterans. E. S. BLAINE. Am. J. Roentgenol., 1923, x, 189.
- Osteochondroma of the ileum. M. THOREK. Rev. d'orthop., 1923, xxx, 47.
- Circumscribed osteomyelitis of the pubis in a child presenting the picture of a tuberculous anal fistula. H. PLAUT. Klin. Wchnschr., 1923, ii, 262.
- Concerning some cases of hydatid cysts of the sacral muscles. C. LASSERRE and P. LANNEY. J. de méd. de Bordeaux, 1923, xcv, 188.
- The limp of childhood. A. J. NUTTER. Canadian M. Ass. J., 1923, xiii, 182.
- A study of the hip joint, with special reference to pelvic measurements. R. SCHERB. Schweiz. Rundschau f. Med., 1923, xxii, 533.
- Diseases and injuries of the hip joint. G. D. MARSHALL. J. Indiana State M. Ass., 1923, xvi, 92.
- External rotation of the leg in diseases of the hip joint. KEHL. Beitr. z. klin. Chir., 1922, cxxvii, 438. [46]
- Juvenile hip disease. S. KOSTLIVY. Bratislavské lekárske listy, 1922, i, 97.
- Coxitis with spontaneous luxation in grippe. K. OCHSENIUS. Deutsche med. Wchnschr., 1922, xlviii, 1726.
- Coxa vara statica. G. RIEDEL. Zentralbl. f. Chir., 1923, i, 312.
- Calvé-Legg-Perthes' disease. J. DIVIS. Časop lék. česk., 1922, lxi, 1241.
- Osteochondritis of the hip. D. M. AITKEN. Proc. Roy. Soc. Med., Lond., 1923, xvi, Sect. Orthop., 13.
- Osteochondritis deformans infantilis; its relation to arthritis deformans of adults and to coxa vara. A. D. RADULESCU and A. LAZARESCU. Clujul med., 1922, iii, 15.
- The development and end-results of osteochondritis deformans of the hip joint (Calvé-Legg-Perthes' disease), and the relationship of this disease to arthritis deformans. C. PERTIES and G. WELSCH. Beitr. z. klin. Chir., 1922, cxxvii, 477. [46]
- To biopsies in two cases of osteochondritis deformans juvenalis. VIGNARD. Arch. franco-belges de chir., 1922, xxv, 1088.
- The importance of trauma in non-tuberculous hip disease in childhood and youth. A. TROELL. Svenska Laekartidningen, 1922, xix, 593.
- Precocious ossification of the epiphyseal lines and its relation to chondrodystrophia fetalis. M. BUDDE. Frankfurt. Ztschr. f. Path., 1922, xxviii, 461. [47]
- Primary osteomyelitis of the patella: report of a case and a review of the literature. V. E. CHESKY. Surg., Gynec. & Obst., 1923, xxxvi, 398. [48]
- Lesions of the semilunar cartilages of the knee. GUIMY. Arch. méd. belges, 1923, lxxvi, 238.
- Cysts of the external semilunar cartilage of the knee. D. B. PHEMISTER. J. Am. M. Ass., 1923, lxxx, 593.
- The treatment of contractures of the knee joint in chronic joint diseases. H. JANSEN. Ugesk. f. Læger, 1922, lxxxiv, 815.
- Anæsthesia of the leg due to loss of nerve conduction. O. WIEDHOPF. Zentralbl. f. Chir., 1922, xlix, 1929.
- Foot pains. F. BRANDENBERG. Schweiz. med. Wchnschr., 1923, liii, 91.
- The hereditary nature of congenital club-foot. R. FETSCHER. Arch. f. Rassen- u. Gesellsch.-Biol., 1922, xiv, 39.
- Disturbances in ossification of the calcaneum as a disease entity. A. BLENCKE. Zentralbl. f. Chir., 1923, i, 308.
- Secondary os calcis. A. KRIDA. J. Am. M. Ass., 1923, lxxx, 752.
- Callus formations on the metatarsals without fracture. W. MUELLER. Muenchen. med. Wchnschr., 1922, lxix, 1475. [48]
- The cause of hallux valgus. K. VON DITTRICH. Arch. f. orthop. u. Unfall-Chir., 1922, xxi, 142. [48]
- A case of ectromelia and phocomelia. M. VERDELET and M. FORTON. Arch. franco-belges de chir., 1923, xxvi, 236.
- The development of the so-called degenerative deformities in the light of recent investigations. J. HAAS. Wien. med. Wchnschr., 1923, lxxiii, 229.
- Occipital vertebra or occipitalization of the atlas. M. LUPO. Chir. d. organi di movimento, 1922, vi, 625.
- Typhoid spine—acute spondylitis following typhoid fever. W. S. O'DONNELL. Med. Clin. N. Am., 1923, vi, 1333.
- The nature of scoliosis. A clinical and roentgenological study. K. PORT. Ztschr. f. orthop. Chir., 1922, xliii, 1.
- A scoliotic family. Congenital scoliosis, and the transmission of scoliosis. H. A. STAUB. Ztschr. f. orthop. Chir., 1922, xliii, 1.
- The significance of post-pleuritic scoliosis in childhood. J. REV. Muenchen. med. Wchnschr., 1923, lxx, 176.
- Scoliosis or lateral curvature of the spine. A. M. FORBES. Canadian M. Ass. J., 1923, xiii, 168.
- Two cases of kyphosis with gibbus in congenital bony anomalies. M. LANCE. Rev. d'orthop., 1923, xxx, 55.
- Myeloma of the vertebrae. R. B. OSGOOD. Boston M. & S. J., 1923, clxxxviii, 380. [44]
- A critical contribution upon spina bifida occulta. O. BECK. Ztschr. f. orthop. Chir., 1922, xliii, 21.

Surgery of the Bones, Joints, Muscles, Tendons, Etc.

- The use of wood shavings in plastic work. W. MUELLER. Muenchen. med. Wchnschr., 1923, lxx, 180.
- The association of the surgeon and radiologist in bone grafting. St. J. D. BUXTON. Arch. Radiol. & Electrotherapy, 1923, xxvii, 289.
- Some points with reference to uniform osteotomy in deviations of the long bones. F. M. CADENAT. Rev. d'orthop., 1923, xxx, 61.
- John B. Murphy on surgery of the joints. R. BASTIANELLI. Surg., Gynec. & Obst., 1923, xxxvi, 317.
- Amputation at the shoulder. F. R. PARAKH. Brit. M. J., 1923, i, 467.
- The surgical reconstruction of the paralytic upper extremity. A. STEINDLER. Illinois M. J., 1923, xliii, 197.
- The treatment of Volkmann's ischæmic contracture. J. T. LÓPEZ-TRIGO. Policlin., Valencia, 1922, ix, 142. [48]
- Certain phases of surgery of the hand. T. W. HARMER. Surg. Clin. N. Am., 1922, ii, 973. [48]
- Transplantation of the hamstrings. W. R. BRISTOW. Proc. Roy. Soc. Med., Lond., 1923, xvi, Sect. Orthop., 13.
- Autoplastic transplantation of bone in the soft parts. VON STUBENRAUCH. Frankfurt. Ztschr. f. Path., 1922, xxviii, 477. [49]
- The choice of the site for amputation with reference to subsequent prosthesis. H. A. ALBRECHT. Verhandl. d. Russ. Chir. Pirogoff-Ges., Petrograd, 1922. [50]
- The results of war amputations of the lower limbs, with special regard to the application of artificial limbs. F. LOTSCH. Deutsche med. Wchnschr., 1922, xlviii, 1723.

The weight-bearing capacity of amputation stumps. T. KOELLIKER. *Zentralbl. f. Chir.*, 1923, I, 330.

The treatment of stumps by Sauerbruch's method. K. E. VEIT. *Zentralbl. f. Chir.*, 1923, I, 12.

Derangements of the internal semilunar cartilage of the knee joint. R. G. CAROTHERS. *Cincinnati J. M.*, 1923, IV, 21.

Knee contractures in chronic articular rheumatism and their treatment. T. NIELSEN. *Hosp.-Tid.*, 1922, LXV, 9, 17.

Critical study of the therapy of tuberculous gonitis. S. ROMICH. *Ztschr. f. orthop. Chir.*, 1922, XLIII, 36.

A new artificial knee joint, rolling knee joint. C. TEN HORN. *Zentralbl. f. Chir.*, 1923, I, 213.

Homoplastic bone graft of the tibia. VANDER ELST. *Arch. franco-belges de chir.*, 1923, XXVI, 181.

Excision of the fibula in amputations below the knee joint. C. BOON. *Brit. M. J.*, 1923, I, 373.

Tendon transplantation for talipes. E. L. EVANS. *Proc. Roy. Soc. Med., Lond.*, 1923, XVI, Sect. Orthop., 14.

Plaster of Paris splint of Pirogoff and the hallux valgus operation. D. KULENKAMPPF. *Zentralbl. f. Chir.*, 1923, I, 331.

Operative treatment of tuberculous spondylitis. M. BAUMANN. *Muenchen. med. Wchnschr.*, 1923, LXX, 81.

Splints for severe scoliosis. G. HOHMANN. *Muenchen. med. Wchnschr.*, 1923, LXX, 177.

The treatment of scoliosis by Abbott's method slightly modified. R. A. RIVAROLA. *Semana méd.*, 1923, XXX, 292.

Fractures and Dislocations

First aid in fractures. H. L. CASTLEMAN. *Internat. J. Surg.*, 1923, XXXVI, 119.

Fractures and dislocations. A textbook for students and practitioners. G. MAGNUS. Berlin: Springer, 1923.

Treatment and results in fractures. J. M. DODD. *Illinois M. J.*, 1923, XLIII, 203.

The value of Grant's pins in the open treatment of fractures as seen roentgenologically. D. Y. KEITH and J. P. KEITH. *Am. J. Roentgenol.*, 1923, X, 195.

Subluxation of the inner end of the right clavicle. P. M. HEATH. *Proc. Roy. Soc. Med., Lond.*, 1923, XVI, Sect. Orthop., 12.

The prognosis of dislocations of the shoulder joint. Schweiz. med. Wchnschr., 1922, LII, 960, 985. [50]

Fractures of the anatomical and surgical necks of the humerus. V. F. MARSHALL. *Wisconsin M. J.*, 1923, XXI, 446.

I. Reversed Colles' fracture. II. Fracture of the first rib. M. I. PAYNE. *Internat. J. Surg.*, 1923, XXXVI, 113.

So-called chauffeur's fracture. T. STEPHENS. *California State M. J.*, 1923, XXI, 115.

Dorsal subluxation of the metacarpal of the thumb. SONNTAG. *Klin. Wchnschr.*, 1923, II, 253.

Fracture of the head of the radius. G. FERRY. *Arch. franco-belges de chir.*, 1923, XXVI, 201.

Congenital dislocation of the hip, with intracapsular exostosis. C. L. STOREY. *J. Am. M. Ass.*, 1923, LXXX, 914.

Reduction of the hip in adults: the iliopsoas as an obstacle to reposition. J. FRAENKEL. *Deutsche Ztschr. f. Chir.*, 1922, CLXXVI, 84.

The operative treatment of dislocated hips, congenital and pathological. H. A. T. FAIRBANK. *Proc. Roy. Soc. Med., Lond.*, 1923, XVI, Sect. Orthop., 15. [51]

Experiences with subtrochanteric osteotomy in irreducible congenital dislocation of the hip. F. HAHN. *Muenchen. med. Wchnschr.*, 1923, LXX, 82.

Fracture of the small trochanter. W. T. G. PUGH. *Proc. Roy. Soc. Med., Lond.*, 1923, XVI, Sect. Orthop., 12.

Epiphyseal fracture of the lower end of the femur. C. W. BETZNER. *Cincinnati J. M.*, 1923, IV, 41.

Simultaneous effort fractures of both patellae. BOURGOM. *Arch. franco-belges de chir.*, 1923, XXVI, 258.

The mechanism and treatment of transverse fracture of patella. S. TREMITERRA. *Riforma med.*, 1923, XXXIX, 296.

An extension apparatus for treating fractures of the tibia and fibula. E. M. STANTON. *J. Am. M. Ass.*, 1923, LXXX, 915.

Fractures of the spine of the tibia. R. STEPHENS. *J. Am. M. Ass.*, 1923, LXXX, 905. [51]

Fracture of the head of the fibula. A. W. LEMARCHAND. *Lancet*, 1923, CCIV, 434.

The treatment of Dupuytren's fracture by screwing on the internal malleolus. G. LECLERC. *Presse méd., Par.*, 1923, XXXI, 165. [52]

Two cases of congenital fracture of the lower leg. P. BULL. *Norsk Mag. f. Lægevidensk.*, 1922, LXXXIII, 872.

The treatment of leg fractures with massage, rolling cushions, and elevation. COLLIN. *Verhandl. d. daen. chir. Gesellsch.*, Kopenhagen, 1922. *Hosp.-Tid.*, 1922, LXV.

An undescribed fracture of the calcaneum. H. VULLIET. *Rev. méd. de la Suisse Rom.*, 1922, XLII, 815. [52]

Orthopedics in General

Rehabilitation of the industrial cripple and the wounded soldier. E. H. HOWELL. *J. Am. Inst. Homœop.*, 1923, XV, 794.

The development of the orthopedic care of those injured in the war. THOMAS. *Arch. f. orthop. u. Unfall-Chir.*, 1922, XXI, 1.

The necessity for more accurate data in the surgeon's permanent disability report. F. E. RAYNES. *California State M. J.*, 1923, XXI, 109.

Early activation of the muscles in infantile paralysis. H. O. FEISS. *Ohio State M. J.*, 1923, XIX, 177.

The correction of deformed feet. A. KORTZEBORN. *Jahresk. f. aertl. Fortbild.*, 1922, XIII, 9.

SURGERY OF THE BLOOD AND LYMPH SYSTEMS

Blood Vessels

The capillaries of the human body surface in health and disease. O. MUELLER. Stuttgart: Enke, 1922.

Physiological and clinical investigations of capillary pressure. M. WEISS. *Presse méd., Par.*, 1923, XXXI, 211.

Cirroid aneurism. What is it? How and when can it be treated? A. W. HAMMER. *Med. Times*, 1923, LI, 63. [53]

A case of aneurism of the arch of the aorta and innominate artery in a woman. B. MYERS. *Proc. Roy. Soc. Med., Lond.*, 1923, XVI, Clin. Sect. 9.

Rupture of the aorta. W. M. DE VRIES. *Nederl. Tijdschr. v. Geneesk.*, 1922, LXVI, 2713.

A case of congenital aneurism of the pulmonary artery. G. S. SUTHERLAND. *Brit. J. Child. Dis.*, 1923, XX, 27.

Traumatic aneurism of the left subclavian artery. R. CASSANELLO. *Riforma med.*, 1923, XXXIX, 242.

The so-called "effort" thrombophlebitis of the axillary vein. GUYOT and JEANNENCY. *Bull. et mém. Soc. de chir. de Par.*, 1923, XLIX, 231. [53]

Venous thrombosis during an attack of acute rheumatism. F. J. POYNTON. *Practitioner*, 1923, CX, 221.

Mesenteric thrombosis. J. F. MITCHELL. *Ann. Surg.* 1923, lxxvii, 299. [53]

Embolectomy in the treatment of circulatory disturbances in the extremities. E. KEY. *Surg., Gynec. & Obst.* 1923, xxxvi, 309. [54]

A case of pelvic aneurism. E. NEUBER. *Orvosi hetil.* 1923, lxvii, 5.

Thrombo-angitis obliterans. H. C. BEAN. *Boston M. & S. J.*, 1923, clxxxviii, 427.

A case of thrombo-angitis obliterans. J. D. BUXTON. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Clin. Sect., 14.

A case of thrombo-angitis obliterans. G. EVANS. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Clin. Sect., 12.

The treatment of stasis in the lower extremities, and of its sequelæ. H. FISCHER. *Muenchen. med. Wchnschr.* 1923, lxx, 116.

Vascular crises produced by constriction of an extremity. J. LE CALVÉ. *Presse méd.*, Par., 1923, xxxi, 78. [55]

Blood and Transfusion

The blood stream in the capillaries of the skin in various regions of the body in varying positions. PARRISIUS and WINTERLIN. *Deutsche Arch. f. klin. Med.*, 1922, cxli, 243.

Antiangrene serum. A. SORDELLI. *Rev. Assoc. méd. argent.*, 1922, xxxv, 958.

Arrest of hæmorrhage in surgery, particularly spontaneous arrest of hæmorrhage. H. STEGEMANN. *Beitr. z. klin. Chir.*, 1922, cxxvii, 657.

Protein therapy and coagulation of the blood. R. SALOMON and W. OPPENHEIMER. *Monatsschr. f. Geburtsh. u. Gynaek.*, 1922, lix, 123.

Therapeutic stimulation of blood coagulation, particularly with reference to surgery. P. F. NIGST. *Schweiz. med. Wchnschr.*, 1922, lii, 1148, 1178, 1211.

The pathogenesis of blood formation. E. WEIL and I. WALL. *Presse méd.*, Par., 1923, xxxi, 243.

An improved method for counting blood platelets. H. M. REES and E. E. ECKER. *J. Am. M. Ass.*, 1923, lxxx, 621.

New principles in therapeutic inoculation. A. E. WRIGHT. *Lancet*, 1923, cciv, 365, 417, 473. [54]

Some clinical manifestations of the anaphylactic reaction. J. F. ANDERSON. *N. York M. J. & Med. Rec.*, 1923, cxvii, 358.

Further investigations over chemical changes in the blood of cancer patients. H. KAHN and P. POTTHOFF. *Ztschr. f. d. ges. exper. Med.*, 1923, xxxi, 423.

On the existence of more than four isoagglutinin groups in human blood. Part II. C. G. GUTHRIE and J. G. HUCK. *Bull. Johns Hopkins Hosp.*, Balt., 1923, xxxiv, 80.

Research on variation in blood groups. P. MINO. *Riforma med.*, 1923, xxxix, 75. [55]

Blood transfusion. E. W. PETERSON. *Ann. Surg.*, 1923, lxxvii, 364.

Intraperitoneal transfusion with citrated blood: a clinical study. D. M. SIPERSTEIN. *Am. J. Dis. Child.*, 1923, xxv, 202.

A preliminary report on blood transfusion in malnutrition and infantile atrophy. J. D. LEEBRON. *N. York M. J. & Med. Rec.*, 1923, cxvii, 298. [56]

Treatment of anæmias in children with blood transfusions. H. OPITZ. *Klin. Wchnschr.*, 1923, ii, 400.

The physiological action of blood transfusion. OPITZ. *Deutsche med. Wchnschr.*, 1923, xlix, 120.

Case of purpura hæmorrhagica. B. MYERS. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Clin. Sect., 10.

Transfusion in purpura hæmorrhagica. R. C. LARRABEE. *J. Am. M. Ass.*, 1923, lxxx, 838.

The use of saline solutions intravenously. W. M. BAYLISS. *Lancet*, 1923, i, 575.

Lymph Vessels and Glands

Observations on the lymphatics and lymph glands. P. T. HERRING and F. G. MACNAUGHTON. *Edinburgh M. J.*, 1923, n.s. xxx, 108.

The demonstration of the lymph radicles in human and animal tissues: their behavior in serous membranes and their significance for their pathology. G. MAGNUS. *Deutsche Ztschr. f. Chir.*, 1922, clxxv, 146. [56]

The results obtained in elephantiasis through the Kondoleon operation. W. E. SISTRUNK. *Minnesota Med.*, 1923, vi, 173. [57]

GYNECOLOGY

Uterus

Plastic closure of the hernial ring through the uterus. H. HILGENREINER. *Zentralbl. f. Gynaek.*, 1923, xlvii, 268.

Ossification of the round ligaments of the uterus. C. GUARINI. *Riforma med.*, 1923, xxxix, 249.

The uterus in malposition. F. REDER. *South. M. J.*, 1923, xvi, 202.

A new operation for the correction of retroflexion of the uterus. J. W. KEEFE. *Boston M. & S. J.*, 1923, clxxxviii, 299.

Malformations of the uterus and appendages. A. T. JONES. *Am. J. Obst. & Gynec.*, 1923, v, 254.

Double uterus and report of a case. A. L. KEE. *Neb-raska State M. J.*, 1923, viii, 101.

The life history of the double uterus. J. O. POLAK. *N. York State M. J.*, 1923, xxiii, 107.

The palliative and operative treatment of prolapse of the uterus. J. C. HIRST and C. MAZER. *Am. J. Obst. & Gynec.*, 1923, v, 225. [58]

Menstruation—an inquiry into its etiology. I. KROSS. *Am. J. Obst. & Gynec.*, 1923, v, 285. [58]

The treatment of menorrhagia by radium. G. BLACKER. *Lancet*, 1923, cciv, 421. [59]

Chronic appendicitis, particularly its relation to dysmenorrhœa. EICK. *Monatsschr. f. Geburtsh. u. Gynaek.*, 1923, lxi, 264.

Dysmenorrhœa and its symptomatic treatment. L. CHEINISSE. *Presse méd.*, Par., 1923, xxxi, 232.

The serum treatment of metrorrhagia. L. BORCEA. *Gynec. si obst.*, 1923, ii, 16.

Conservatism in the treatment of essential uterine hæmorrhage. S. H. GEIST. *Surg., Gynec. & Obst.*, 1923, xxxvi, 383.

The treatment of severe and persistent uterine hæmorrhage by radium, with a report upon forty-five cases. S. FORSDIKE. *Med. Press*, 1923, n.s. cxv, 212.

False pregnancy and abortion resulting due to a uterine polyp. A. L. GÓMIZ. *Españ. med.*, 1923, xiv, 4.

A case of gangrenous fibroma of the neck of the uterus mistaken for prolapse. GUYOT and ICHON. *J. de méd. de Bordeaux*, 1923, xcv, 165.

Gangrenous fibroma and pregnancy. M. RIOUX. *J. de méd. de Bordeaux*, 1923, xcv, 156.

Fibromyoma of the uterus. M. Rosso. *Semana méd.*, 1923, xxx, 412.

Anatomo-pathologic studies of a case of uterine fibroma

treated with the X-ray. C. DANIEL and A. BABES. *Gynéc. si obst.*, 1923, ii, 5.

X-rays in the treatment of uterine fibroids. J. R. RIDDELL. *Glasgow M. J.*, 1923, n.s. xvii, 151.

Radiotherapy or surgical treatment in fibromata of the uterus? J. B. KOUWER. *Gynéc. et obst.*, 1922, vi, 385. [60]

A report of three cases of abdominal section for uterine fibroid after the use of radium. T. J. WATKINS. *Surg., Gynec. & Obst.*, 1923, xxxvi, 433.

The surgical treatment of uterine fibroids. J. N. STARK. *Glasgow M. J.*, 1923, n.s. xvii, 145.

Mixed tumors of the uterus. A. J. PETERSEN. *J. Lab. & Clin. Med.*, 1923, viii, 369.

The treatment of carcinoma of the uterus: with special reference to surgery, the X-ray, and radium. H. SCHMITZ. *Northwest Med.*, 1923, xxii, 77. [60]

The morphological histology of adenocarcinoma of the body of the uterus in relation to longevity: a study of 186 cases. A. E. MAHLE. *Surg., Gynec. & Obst.*, 1923, xxxvi, 385. [61]

The treatment of certain conditions of the cervix uteri. G. GIBSON. *N. York State J. M.*, 1923, xxiii, 109.

Unrecognized syphilis, tertiary syphilitic ulceration of the uterine cervix, and a positive Wassermann reaction. P. SYLVESTRE. *Rev. méd. de la Suisse Rom.*, 1923, xliii, 171.

Cancer of the cervix. W. H. KENNEDY. *Kentucky M. J.*, 1923, xxi, 160.

Carcinoma of the cervical stump: report of eight cases. L. DAVIS. *Boston M. & S. J.*, 1923, clxxxviii, 304.

The technique of the treatment of carcinoma of the cervix uteri with a combination of X-rays and radium rays. H. SCHMITZ. *Am. J. Roentgenol.*, 1923, x, 219.

Two cases of cancer of the cervix treated by radium before operation. T. W. EDEN and A. GOODWIN. *Proc. Roy. Soc. Med., Lond.*, 1923, xvi, Sect. Obst. & Gynec., 32.

The results of radium treatment of uterine cancer. M. FERRAN. *Arch. franco-belges de chir.*, 1923, xxvi, 295.

Radium treatment and excision of neoplasms of the uterine cervix. ROUX DE BRIGNOLES, PIERI, and GAMEL. *Arch. franco-belges de chir.*, 1923, xxvi, 279.

A uterus removed for carcinoma of the cervix after treatment by radium. A. H. RICHARDSON. *Proc. Roy. Soc. Med., Lond.*, 1923, xvi, Sect. Obst. & Gynec., 31.

Adnexal and Peri-Uterine Conditions

Pyosalpinx with fistula into the bladder; salpingography; transvesical intratubal instillations of silver nitrate; recovery. DUVERGEY and DAX. *J. de méd. de Bordeaux*, 1923, xcv, 187.

The removal of pus tubes, saving of the ovaries, and suspension of the uterus. F. P. CANAC-MARQUIS. *California State M. J.*, 1923, xxi, 117.

Two cases of intraperitoneal cataclysm from tubal rupture. L. L. PEREIRA. *Repert. de med. y cirug.*, 1923, xiv, 137.

Experimental investigation of the value of the various commercial ovarian extracts. S. H. GEIST and W. HARRIS. *Endocrinology*, 1923, vii, 41. [61]

Hernia of the ovary. A. SCHOENMEIER. *Beitr. z. klin. Chir.*, 1923, cxxviii, 451.

Calcification of the ovary: report of a case. T. C. BOST. *J. Am. M. Ass.*, 1923, lxxx, 912.

Papillary cystadenoma of the ovary. J. W. GIBBON. *Virginia M. Month.*, 1923, xlix, 729.

Ovarian cysts and pregnancy—results in thirty-five cases operated upon during pregnancy. J. SZYMANOWICZ. *Gynéc. et obst.*, 1922, vi, 405.

A contribution to the study of the effects of radium upon rabbit ovaries. H. A. WEIS. *Surg., Gynec. & Obst.*, 1923, xxxvi, 373. [61]

External Genitalia

Traumatic third-degree laceration of the perineum in a female child 7 years old: report of a case. L. E. PHANEUF. *Boston M. & S. J.*, 1923, clxxxviii, 258.

Secondary stenosis of the vaginal orifice. C. STANCA. *Zentralbl. f. Gynaek.*, 1922, xlv, 1769.

A case of transverse septum of the vagina; abortion with retention of the fetus and hæmatocolpos. E. GOINARD. *Rev. franç. de gynéc. et d'obst.*, 1923, xviii, 193.

A case of large vaginal cyst arising from Gaertner's duct. J. SUESS. *Zentralbl. f. Gynaek.*, 1923, xlvii, 73.

Adenoma of the vaginal fornix simulating cancer of the cervix. H. R. SPENCER. *Proc. Roy. Soc. Med., Lond.*, 1923, xvi, Sect. Obst. & Gynec., 27.

Specimen of a squamous epithelioma of the vagina. T. G. STEVENS. *Proc. Roy. Soc. Med., Lond.*, 1923, xvi, Sect. Obst. & Gynec., 26.

Primary carcinoma of the vagina treated by hysterovaginectomy. D. DOUGAL. *J. Obst. & Gynec. Brit. Emp.*, 1923, xxx, 38. [62]

A case of primary carcinoma of the vagina. E. HOLLAND. *J. Obst. & Gynec. Brit. Emp.*, 1923, xxx, 40. [62]

Squamous epithelioma of the vagina. T. G. STEVENS. *J. Obst. & Gynec. Brit. Emp.*, 1923, xxx, 42. [62]

Adenoma of the vaginal fornix simulating cancer of the cervix. H. R. SPENCER. *J. Obst. & Gynec. Brit. Emp.*, 1923, xxx, 44. [62]

A specimen of primary carcinoma of the vagina. E. HOLLAND. *Proc. Roy. Soc. Med., Lond.*, 1923, xvi, Sect. Obst. & Gynec., 25.

Schuchardt's incision with reference to the exposure obtained in inaccessible vesicovaginal fistulæ. J. G. SPACKMAN. *Hahneman. Month.*, 1923, lviii, 209.

A case of ulcerating granuloma of the pudenda in which healing began immediately subsequent to the administration of antimony. P. MANSON-BAHR. *Proc. Roy. Soc. Med., Lond.*, 1923, xvi, Clin. Sect., 25.

Miscellaneous

Progress in gynecology. F. A. PEMBERTON. *Boston M. & S. J.*, 1923, clxxxviii, 338.

Value of cystoscopy in gynecology. E. CASTAÑO. *Semana méd.*, 1923, xxx, 356.

Constant or paradoxical localization of certain pains in gynecology. M. MURET. *Gynéc. et obst.*, 1923, vii, 122.

Focal infections and their clinical relations to metastases in the female genitalia. A. B. KEYES. *Am. J. Obst. & Gynec.*, 1923, v, 277.

Gonorrhea in women treated with contramine pessaries. G. W. RUNDLE. *Lancet*, 1923, cciv, 434.

Birth control and sterility. C. H. DAVIS. *Surg., Gynec. & Obst.*, 1923, xxxvi, 435.

The problem of experimental parthenogenesis (artificial fecundation). L. MAVROMATI. *Gynéc. si obst.*, 1923, ii, 25.

Report of a case of genital abnormality and acute appendicitis in a girl of 8. H. W. YATES. *Am. J. Obst. & Gynec.*, 1923, v, 261.

Spinal anæsthesia in gynecology. W. R. COOKE. *Texas State J. M.*, 1923, xviii, 554.

Ureteral injuries during pelvic operations. J. M. MAURY. *Ann. Surg.*, 1923, lxxvii, 314.

The healing of wounds of gynecological operations where there has been previous roentgen treatment. E. VOGT. *Med. Klin.*, 1922, xviii, 1491.

OBSTETRICS

Pregnancy and Its Complications

Diet during pregnancy. E. CARY. *Illinois M. J.*, 1923, xliii, 228.

The blood pressure during hæmolytic in normal pregnant women at term. S. MAZZA and D. IRAETA. *Rev. Asoc. méd. argent.*, 1922, xxxv, 963.

Uterine displacements and pregnancy. B. R. McCLELLAN. *Am. J. Obst. & Gynec.*, 1923, v, 242.

Contracted pelvis and other serious maternal defects requiring artificial termination of pregnancy. H. H. CUMMINS. *J. Michigan State M. Soc.*, 1923, xxi, 150.

A new measurement as an aid in the diagnosis of rachitic and generally contracted pelvis. W. E. WELZ and R. W. ALLES. *Am. J. Obst. & Gynec.*, 1923, v, 283. [63]

The value of abdominal measurements in recognizing the size and maturity of the fetus. C. R. HANNAH. *Texas State J. M.*, 1923, xviii, 543.

The sounds of the fetal heart. G. A. STEPHENS. *J. Obst. & Gynec. Brit. Emp.*, 1923, xxx, 32.

Interstitial pregnancy. T. C. GILBERT. *Texas State J. M.*, 1923, xviii, 546.

Ectopic pregnancy. C. V. SCOTT. *J. Arkansas M. Soc.*, 1923, xix, 194.

A case of ectopic pregnancy at term with a living child. B. J. O'Neill and W. W. CRAWFORD. *J. Am. M. Ass.*, 1923, lxxx, 913.

A case of abdominal pregnancy. A. E. PINNIGER. *J. Obst. & Gynec. Brit. Emp.*, 1923, xxx, 49.

Ruptured tubal pregnancy: a case record. C. F. ULRICH. *Nebraska State M. J.*, 1923, viii, 105.

Two embryologically important specimens of tubal twins, including critical summaries of all known cases. L. B. AREY. *Surg., Gynec. & Obst.*, 1923, xxxvi, 407.

The diagnosis of anencephaly in a case of tumor of the neck of the fetus in a triple pregnancy. J. C. LASCANO. *Semana méd.*, 1923, xxx, 429.

Heart disease and pregnancy. F. M. WILSON and G. R. HORRMANN. *J. Michigan State M. Soc.*, 1923, xxi, 148.

Management of associated pulmonary tuberculosis and pregnancy. L. CLEISZ. *Gynec. et obst.*, 1923, vii, 224.

Studies on the influence of pregnancy in syphilis. The course of syphilitic infection in pregnant women. J. E. MOORE. *Bull. Johns Hopkins Hosp., Balt.*, 1923, xxxiv, 89.

Appendicitis, the female genital organs, pregnancy. F. DE GIRONCOLI. *Deutsche Ztschr. f. Chir.*, 1922, clxxv, 313.

Acute appendicitis complicating pregnancy. A. W. ANDERSON. *Nebraska State M. J.*, 1923, viii, 102.

Accidental hæmorrhage; report of five cases. A. C. WADE. *J. Med. Ass. Georgia*, 1923, xii, 105.

Report of two cases of placenta prævia in which cesarean section was done. J. A. FISHER. *Illinois M. J.*, 1923, xliii, 199.

On food deficiency disease simulating pregnancy toxæmia. J. P. MAXWELL. *J. Obst. & Gynec. Brit. Emp.*, 1923, xxx, 34.

Improved phenoltetrachlorphthalein test for liver function in pregnancy and its toxæmias. H. H. ROSENFELD and E. F. SCHNEIDERS. *J. Am. M. Ass.*, 1923, lxxx, 743.

Report of a case of toxæmia of pregnancy with acute yellow atrophy of the liver. F. R. OASTLER and H. G. JACOBI. *Am. J. Obst. & Gynec.*, 1923, v, 271. [63]

Toxæmias of pregnancy, including pre-eclampsia, eclampsia, and nephritis; the indications for, and the method of,

artificial interruption of pregnancy. R. PETERSON. *J. Michigan State M. Soc.*, 1923, xxi, 144. [64]

Eclampsia. D. H. BESSESEN. *Am. J. Surg.*, 1923, xxxvii, 49.

Investigations on eclamptic uræmia. K. O. LARSSON. *Acta med. Scand.*, 1923, Supp. iii, 289.

Hyperemesis gravidarum. J. N. BELL. *J. Michigan State M. Soc.*, 1923, xxi, 146.

Glycosuria resulting in the birth of a dead child treated with successful results in a subsequent pregnancy. R. WISE. *Proc. Roy. Soc. Med.*, 1923, xvi, Sect. Obst. & Gynec., 35.

Pregnancy in a fibroid uterus. C. M. ROLSTON. *Brit. M. J.*, 1923, i, 558.

Exhibition of a fibroid with a pregnant uterus. A. GOLDSPOHN. *Surg., Gynec. & Obst.*, 1923, xxxvi, 434.

What should one do in the presence of a pregnancy complicated by a fibroma prævia? P. BALARD and J. DEHAN. *Rev. franç. de gynéc. et d'obst.*, 1923, xviii, 159.

Induced abortion, uterine perforation, laparotomy. G. DE ROUVILLE. *Rev. franç. de gynéc. et d'obst.*, 1923, xviii, 157.

Labor and Its Complications

A safe and practical method of administering scopolamine-morphine anesthesia in obstetrics. B. VAN HOESSEN. *N. Orleans M. & S. J.*, 1923, lxxv, 531.

Nitrous oxide and oxygen in obstetrics. A. E. RIVES. *Illinois M. J.*, 1923, xliii, 230.

Nitrous oxide in obstetrics. J. R. WORLEY. *Texas State J. M.*, 1923, xviii, 551.

The use of morphine in obstetrics. F. HENDRICKSON and A. R. VONDERAHE. *Ohio State M. J.*, 1923, xix, 189.

The induction of labor at term. W. W. ARRASMITH. *Nebraska State M. J.*, 1923, viii, 81.

Primary uterine inertia in a twin pregnancy following premature rupture of the membranes. A. TOWNSEND. *Nebraska State M. J.*, 1923, viii, 107.

Functional dystocia in normal pelvis: recognition and management. J. A. HARRAR. *Am. J. Obst. & Gynec.*, 1923, v, 246. [65]

Obstructed labor. K. C. McILWRAITH. *Canadian Pract.*, 1923, xlviii, 95.

Potter version. E. F. PURCELL. *Hahneman. Month.*, 1923, lviii, 170.

A two-forceps manoeuvre for persistent occipito-posterior presentation. S. SEIDES. *Surg., Gynec. & Obst.*, 1923, xxxvi, 421.

Pituitrin in the second stage of labor. M. A. TATE. *Am. J. Obst. & Gynec.*, 1923, v, 252.

Report of a case of sudden death in labor due to intracranial hæmorrhage. R. A. BARTHOLOMEW. *J. Med. Ass. Georgia*, 1923, xii, 109.

Clinical aspects of blood loss in labor. P. T. HARPER. *Am. J. Obst. & Gynec.*, 1923, v, 233. [66]

Should pubiotomy be recognized as a justifiable operation in obstetrics? A. H. BILL. *Am. J. Obst. & Gynec.*, 1923, v, 258.

Cæsarean section. H. H. OGILVIE. *Texas State J. M.*, 1923, xviii, 548.

Some reflections on low transperitoneal cæsarean section. E. HAUCH. *Rev. franç. de gynéc. et d'obst.*, 1923, xviii, 188.

Indications for cæsarean section—a study of 100 cases. M. BURNELL. *J. Michigan State M. Soc.*, 1923, xxi, 140.

Occlusion of the lower part of the rectum due to the administration of a simple enema during labor. W. F. SHAW. *J. Obst. & Gynec. Brit. Emp.*, 1923, xxx, 47.
 Uterine suture and drainage through the line of closure. A. VON REDING. *Zentralbl. f. Gynaek.*, 1923, xlvii, 272.

Puerperium and Its Complications

The advantages of dieting during lactation. E. FOSTER. *Semana méd.*, 1923, xxx, 460.
 Clinical value of an analysis of mother's milk. D. SALCEDO. *Med. Ibero*, 1923, vii, 252.
 The care of the perineum. C. D. FISHER. *J. Am. Inst. Homœop.*, 1923, xv, 820.
 Flap perineoplasty for laceration of the perineum. IMBERT. *Arch. franco-belges de chir.*, 1923, xxvi, 274.
 Reconstruction of perineal genito-urinary childbirth injuries. F. C. WALKER. *J. Indiana State M. Ass.*, 1923, xvi, 84.
 Acute puerperal inversion of the uterus. C. S. L. ROBERTS. *Brit. M. J.*, 1923, i, 557.
 The prognosis of pulmonary tuberculosis coincident with the puerperium. L. CLEISZ. *Gynec. et obst.*, 1923, vii, 150.
 The rapidity of settling of the red blood cells in puerperal septic processes, particularly their conduct after the intravenous injection of colloidal silver (dispargen) and Pregl's iodine solution in these diseases. A. MAHNERT and K. HORNECK. *Arch. f. Gynaek.*, 1922, cxvi, 383.
 The treatment of puerperal infections, with discussion. B. P. WATSON. *Brit. M. J.*, 1923, i, 505, 511.

Newborn

The identification of babies in maternities. J. B. DELEE. *Am. J. Obst. & Gynec.*, 1923, v, 288.
 Attacks of arrested respiration in the newborn. G. F. STILL. *Lancet*, 1923, cciv, 431. [66]
 A case of hæmorrhage in the newly born. W. R. GROVES. *Med. Press*, 1923, n.s. cxv, 196.
 Blood transfusion by the citrate method in hæmorrhages of the newborn. F. H. FALLS. *J. Am. M. Ass.*, 1923, lxxx, 678.
 Infantile myxœdema and its treatment. AYGUAVIVES. *Arch. de gynec., obst. y pediat.*, 1923, xxxvi, 18.
 Tuberculosis of the newborn. R. DEBRÉ. *Gynec. et obst.*, 1923, vii, 199.
 Description of a double monster. R. MESTRE. *Semana méd.*, 1923, xxx, 403.
 Obstetrical depression of the parietal bone. A. MARIQUE. *Arch. franco-belges de chir.*, 1923, xxvi, 242.
 Ophthalmia neonatorum. E. BOURQUIN. *Rev. méd. de la Suisse Rom.*, 1923, xliii, 177.

Miscellaneous

Address before the Academy of Medicine, Paris. BRINDEAU. *Presse méd.*, Par., 1923, xxxi, 57.
 Lessening maternity hazard. C. E. BOYS. *Trained Nurse & Hosp. Rev.*, 1923, lxx, 234.
 The physician and birth control. T. W. EDGAR. *Med. Times*, 1923, li, 73.
 Obstetrics in 1,000 cases as seen by a country practitioner. A. KUHLMANN. *J.-Lancet*, 1923, xliii, 146.

GENITO-URINARY SURGERY

Adrenal, Kidney, and Ureter

Syphilis of the adrenals. W. H. DEADERICK. *Am. J. Syphilis*, 1923, vii, 72. [67]
 Technique of adrenalectomy in the case of normal or slightly altered glands. C. WILLEMS. *Bruxelles-med.*, 1923, iii, 527.
 Condition of the adrenals after liver extirpation. H. ELIAS. *Ztschr. f. d. ges. exper. Med.*, 1923, xxxi, 447.
 Experiences in pneumoentgenography of the renal bed by Rosenstein's method. ZIEGLER. *Fortschr. a. d. Geb. d. Roentgenstrahlen*, 1922, xxx, 56. [67]
 Perirenal tumors: report of a case. R. V. DAY. *J. Am. M. Ass.*, 1923, lxxx, 840.
 Crossed malposition of the kidneys. W. PAGEL. *Arch. f. path. Anat.*, etc., 1923, ccxl, 508.
 The nephridium or urinary tube. P. BOUIN. *Arch. d. mal. d. reins et d. organes génitaux-urinaires*, 1923, i, 290.
 Is urotropin a diuretic? L. CHEINISSE. *Presse méd.*, Par., 1923, xxxi, 278.
 The treatment of reflex anuria. K. NEUWIRT. *Ztschr. f. urol. Chir.*, 1922, xi, 75. [67]
 Renal crepitation. A. G. CASARIEGO. *J. d'urol. med. et chir.*, 1923, xv, 112.
 Pyelography. I. SZABÓ. *Beitr. z. klin. Chir.*, 1923, cxviii, 433.
 Vesical filtration and bilateral catheterization; method of assigning the urine to one kidney or the other. PUJOS. *J. d'urol. med. et chir.*, 1923, xv, 113.
 Polycystic disease of the kidneys: report of case in an infant. A. TOW. *Am. J. Dis. Child.*, 1923, xxv, 222.
 Echinococcus of the kidney. R. MATA. *Rev. españ. de cirug.*, 1923, v, 58.

Hydronephrosis. H. G. HAMER and H. O. MERTZ. *Chicago M. Rec.*, 1923, xlv, 583.
 Hydronephrosis of a single kidney; spontaneous rupture into the peritoneal cavity. P. TURNER. *Proc. Roy. Soc. Med., Lond.*, 1923, xvi, Clin. Sect., 24.
 Congenital hydronephrosis; traumatic hæmatonephrosis; rupture of the hæmatonephrosis. VERLIAC and LÉPOUTRE. *J. d'urol. med. et chir.*, 1923, xv, 220.
 Infections of the kidney. F. N. DEALY. *Am. J. Surg.*, 1923, xxxvii, 63.
 The relation of acidosis to nitrogen retention in experimental nephritis. D. VANDERHOOF and C. C. HASKELL. *South. M. J.*, 1923, xvi, 170. [68]
 A case of pyelonephritis treated by intravenous injections of urotropin combined with pelvic lavage. DUVERGEY and DAX. *J. de med. de Bordeaux*, 1923, xcvi, 167.
 Tuberculosis of the kidney and nephrectomy. H. NIEDEN. *Ztschr. f. urol. Chir.*, 1922, x, 230. [68]
 Pyelitis; some clinical relationships. E. W. JANES. *Northwest Med.*, 1923, xxii, 96.
 Abnormality of the kidney pelvis with associated pyonephrosis. G. P. MULLER. *Surg. Clin. N. Am.*, 1923, iii, 129. [69]
 Pyonephrosis with multiple calculi in a child of 12 years: case report. G. P. GRIGSBY. *Kentucky M. J.*, 1923, xxi, 139.
 Kidney abscess and pyonephrosis: review of cases. J. H. NEFF. *Virginia M. Month.*, 1923, xlix, 715.
 Pyonephrosis following congenital hydronephrosis; complete dilatation of the excretory channels of the right kidney, nephrectomy, recovery. A. BOECKEL. *J. d'urol. med. et chir.*, 1923, xv, 105.
 Grawitz tumors. E. MUSCHOLL. *Deutsche Ztschr. f. Chir.*, 1922, clxxvi, 22.

The anatomy and clinical aspect of epithelial neoplasms of the renal pelvis. M. GRAUHAN. *Deutsche Ztschr. f. Chir.*, 1922, clxxiv, 152. [69]

On subcapsular pyelotomy, with remarks on the origin and treatment of renal calculi. W. S. HANDLEY. *Proc. Roy. Soc. Med., Lond.*, 1923, xvi, Sect. Surg., 21. [70]

The technique of nephrotomy. E. HAGENBACH. *Ztschr. f. urol. Chir.*, 1923, xi, 40.

The technique of nephrotomy. A. HEYMANN. *Ztschr. f. urol. Chir.*, 1923, xi, 168.

Life-saving effect of unilateral renal decapsulation in uræmic anuria. A. NIEDERMEYER. *Klin. Wchnschr.*, 1923, ii, 307.

The diagnosis of malignant tumors of the kidney. M. LIEBMANN. *Ztschr. f. Urol.*, 1922, xvi, 347. [70]

A spontaneous hæmatoma in sarcoma of the kidney. F. K. BOLAND. *Ann. Surg.*, 1923, lxxvii, 311.

Sarcoma or embryoma of the kidney in infants. C. R. ROBINS. *Ann. Surg.*, 1923, lxxvii, 306.

Congenital sarcoma of the kidney. C. L. DEMING. *J. Am. M. Ass.*, 1923, lxxx, 902.

Urinary calculi and sarcoma of the kidney in children. H. T. PRICE. *Pennsylvania M. J.*, 1923, xxvi, 355. [70]

A case of complete unilateral duplication of the ureter and renal pelvis. P. G. SMITH. *Cincinnati J. M.*, 1923, iv, 33.

Anuria following nephrectomy. D. F. ARANDA. *Arch. de med., cirug. y especial.*, 1923, x, an. acad. méd.-quirúr. españ., 296.

The treatment of ureteral calculi from the general surgeon's standpoint. R. L. PITTMAN. *South. M. & S.*, 1923, lxxxv, 143.

A large ureteral calculus. R. W. STALEY. *Cincinnati M. J.*, 1923, iv, 43.

Experimental intraperitoneal division of one ureter. W. C. JONES. *South. M. J.*, 1923, xvi, 188.

Two cases of double ureterotomy on one side. I. S. COVISA. *Arch. de med., cirug. y especial.*, 1923, x, an. acad. méd.-quirúr. españ., 304.

Bladder, Urethra, and Penis

Exstrophy of the bladder. N. CÚNEO. *Semana méd.*, 1923, xxx, 490.

A case of exstrophy of the bladder with embryonic umbilical hernia and anorectal aplasia. GARCIA. *Semana méd.*, 1923, xxx, 347.

War wounds of the bladder. MAISONNET. *Arch. d. mal. d. reins et d. organes génitiaux-urinaires*, 1923, i, 257.

A case of extensive dilatation of the bladder, ureters, and pelvis as a result of a valve-like closure of the internal urethral orifice. C. O. SCHMIDT. *Ztschr. f. urol. Chir.*, 1923, xi, 158.

Diverticulum of the bladder in the inguinal canal. H. E. STEIN. *J. Am. M. Ass.*, 1923, lxxx, 620.

Partial spontaneous inversion of a diverticulum of the bladder with a dumbbell stone. C. R. B. CROMPTON. *J. Urol.*, 1923, ix, 283. [71]

A new symptom of vesical calculus. G. GAETA. *Pol-clin.*, Rome, 1923, xxx, sez. prat., 372.

Obstruction at the ureterovesical valve. T. N. HEPBURN. *Surg., Gynec. & Obst.*, 1923, xxxvi, 368. [71]

The non-surgical removal of paraffin in the urinary bladder. D. R. MELEN. *J. Am. M. Ass.*, 1923, lxxx, 685.

Report of a case of stone in the bladder which formed around a suture of Pagenstecher linen. H. L. KRET-SCHMER. *J. Urol.*, 1923, ix, 281.

The treatment of bladder infections. S. H. LIKES and H. SCHOENRICH. *Am. Med.*, 1923, xxix, 171.

The rapid cure of cystitis in children. J. C. HIRST. *N. York M. J. & Med. Rec.*, 1923, cxvii, 263. [71]

The treatment of tuberculosis of the bladder. GORASCH. *Verhandl. d. Kong. Russ. Chir.*, Petrograd, 1922. [72]

Excision of tissue from the bladder for diagnosis. K. SCHEEL. *Muenchen. med. Wchnschr.*, 1923, lxx, 17.

A case of hæmorrhagic purpura of the bladder. F. ZSIGMOND. *Gyógyászat*, 1922, xlv, 618. [72]

Incrusted tumor of the bladder. E. PAPIN. *J. d'urol. med. et chir.*, 1923, xv, 136.

The treatment of epithelial tumors of the urinary bladder, based on a consideration of 162 cases personally observed and treated. F. KIDD. *Lancet*, 1923, i, 523.

A case of cancer of the bladder treated by deep radiotherapy. A. BOECKEL. *J. d'urol. med. et chir.*, 1923, xv, 205.

The treatment of cancer of the bladder by radium implantation. G. G. SMITH. *J. Urol.*, 1923, ix, 217. [72]

A new method of applying radium through the cystoscope. L. BUEGER. *J. Urol.*, 1923, ix, 227. [73]

Diathermy in the treatment of tumors of the lower urinary tract. B. C. CORBUS. *J. Urol.*, 1923, ix, 203. [73]

The urethral crest. C. L. DEMERITT. *Am. J. Surg.*, 1923, xxxvii, 67.

Urethritis. J. H. HAYS. *J. Oklahoma State M. Ass.*, 1923, xvi, 64.

Some remarks on the growth of spermatozoa in chronic urethritis. NOGUÈS and DURUPT. *J. d'urol. med. et chir.*, 1923, xv, 133.

A comparative study of neisserian infections in the male and female urethra. H. W. MCKAY and L. C. TODD. *South. M. J.*, 1923, xvi, 209.

Gonorrhœa and its complications in the male. The value of urethroscopy as a diagnostic and therapeutic agent. N. E. ARONSTAM. *Internat. J. Surg.*, 1923, xxxvi, 120.

Complications occurring in gonorrhœal urethritis. A. H. CROSBIE. *Boston M. & S. J.*, 1923, clxxxviii, 435.

A standard cure in gonorrhœal urethritis in the male. C. H. GARVIN. *J. Nat. M. Ass.*, 1923, xv, 20.

The anti-gonococcal vaccine of the Pasteur Institute of Paris. H. BLANCHOT. *J. de méd. de Bordeaux*, 1923, xcv, 51.

An enormous calculus of the corpus spongiosum urethræ. BOULLET. *J. d'urol. med. et chir.*, 1923, xv, 131.

Resection of the urethra with mobilization and suture in cicatricial strictures and fistulæ. N. PETROFF. *Arch. f. klin. Chir.*, 1922, cxxii, 1. [73]

A case of gangrene of the scrotum and penis. W. C. STIRLING. *J. Am. M. Ass.*, 1923, lxxx, 622.

Genital Organs

Absence of the prostate associated with endocrine disease, notably hypopituitarism; with the histories of eighteen cases. H. LISSER. *Endocrinology*, 1923, vii, 225.

The treatment of abscess of the prostate by vaccine therapy. NOGUÈS. *J. d'urol. med. et chir.*, 1923, xv, 119.

Calculus cast of the prostate. D. STETTEN. *Ann. Surg.*, 1923, lxxvii, 381.

The meaning of the term "prostatic hypertrophy" or "adenoma." TANT. *Bruxelles-méd.*, 1923, iii, 551.

Hypertrophy of the prostate. W. HORN and W. ORATOR. *Frankfurt. Ztschr. f. Path.*, 1922, xxviii, 340. [73]

Adenoma of the accessory glands suggesting prostatic hypertrophy. J. VON BORZA. *Ztschr. f. urol. Chir.*, 1922, xi, 109. [74]

Eosinophilia of the blood and neoplastic growths of the prostate. M. NEGRO. *J. d'urol. med. et chir.*, 1923, xv, 99.

Electrotherapeutics in prostatic conditions: historical review and critique. V. C. PEDERSEN. *J. Urol.*, 1923, ix, 249.

Imperfect result from tunneling the prostate; recovery following enucleation of the adenoma. J. MARTIN. J. d'urol. med. et chir., 1923, xv, 122.

Cancer of the prostate and radium. M. ANDRÉ. J. d'urol. med. et chir., 1923, xv, 203.

Some problems of prostatectomy. C. MORSON. Practitioner, 1923, cx, 253.

Prostatectomy, with special reference to the perineal route. J. S. HORSLEY. Virginia M. Month., 1923, xlix, 718.

Some further observations on prostatectomy. R. C. BRYAN. Virginia M. Month., 1923, xlix, 721.

Anatomical and clinical investigations concerning the behavior of the ejaculatory duct after suprapubic prostatectomy. R. LICHTENSTERN. Ztschr. f. urol. Chir., 1923, xii, 32.

An old hæmatocele of the tunica vaginalis resembling a teratoma of the testicle. CHENUT and PRINCETEAU. J. de méd. de Bordeaux, 1923, xcv, 168.

Epididymectomy in genital tuberculosis. MARION. Presse méd., Par., 1923, xxxi, 129. [74]

The physiology of the seminal vesicles. S. LARREGA. Semana méd., 1923, xxx, 520.

Anomalies in the descent of the testicles in the weak-minded. G. D. ARONOWITSCH. Nautschnaja Medizqua, 1922, ix, 123. [74]

A case of bilateral ectopia of the testes. BOSSY. Arch. franco-belges de chir., 1923, xxvi, 260.

Seminoma from an ectopic testis. BARDON and DENIS. J. de méd. de Bordeaux, 1923, cxv, 163.

Operation for undescended testis. HABS. Arch. f. klin. Chir., 1922, cxxi, 293.

Traumatic orchitis and employers' liability. LEGUEU. Med. Press, 1923, n.s.cxxv, 215.

Testis transplantation. C. HAMMESFAHR. Zentralbl. f. Chir., 1923, l, 9.

Testis transplantation. HILGENBERG. Arch. f. klin. Chir., 1922, cxxi, 300.

Pathogenesis of essential hydrocele. M. SEGRÈ. Policlin., Rome, 1923, xxx, sez. prat., 368.

Operations on the genital organs. W. HAUBENREISSER. Deutsche Ztschr. f. Chir., 1922, clxxvi, 31.

Alternating glandular hermaphroditism in a child of 10 years. K. SAND. J. d'urol. med. et chir., 1923, xv, 181.

Miscellaneous

The relation of the general practitioner to the urologist. W. F. BRAASCH. Minnesota Med., 1923, vi, 128. [74]

The relationship of genito-urinary diseases to the chronic patient. B. C. CORBUS. Chicago M. Rec., 1923, xlv, 589.

The urea secretion constant. S. ROLANDO. J. d'urol. med. et chir., 1923, xv, 95.

A case of chyluria treatment with arsenobenzol. H. CHABANIER and C. LOBO-ONELL. J. d'urol. med. et chir., 1923, xv, 128.

Is orthostatic albuminuria a unilateral disorder? C. QUINAN. J. Am. M. Ass., 1923, lxxx, 899.

The value of cystoscopic examination in hæmaturia. A. M. CRANCE. N. York State J. M., 1923, xxiii, 104.

The etiology of urinary lithiasis: an experimental study. L. D. KEYSER. Arch. Surg., 1923, vi, 525. [75]

A case of staphylococcus excretion through the urinary organs cured after tonsillectomy. R. PICKER. Ztschr. f. urol. Chir., 1922, xi, 86.

The "local" Wassermann reaction: a new diagnostic aid in primary syphilis. D. STERN and H. RYPINS. Minnesota Med., 1923, vi, 167.

A case of co-existent tuberculosis and syphilis in the genital tract. D. M. P. MAGEE. Med. Press, 1923, n.s. cxv, 217.

Experiences with the urochromogen reaction of the bladder in surgical tuberculosis. FLESCH-THEBESUS and LION. Arch. f. klin. Chir., 1922, cxxii, 370.

The operative treatment of genital tuberculosis. R. BACHRACH. Ztschr. f. urol. Chir., 1922, xi, 114. [75]

Reflections of a urologist upon recent results of roentgen therapy. NICOLICH. J. d'urol. med. et chir., 1923, xv, 89.

The relation of the urologist to cancer. J. D. BARNEY. Boston M. & S. J., 1923, clxxxviii, 431.

Nitrous-oxide oxygen: its value as a general anæsthetic in genito-urinary surgery. J. J. BUETTNER. N. York State J. M., 1923, xxiii, 112.

An apparatus permitting patients with cystostomies or permanent catheters to be ambulatory. E. JEANBRAU. J. d'urol. med. et chir., 1923, xv, 109.

Continuous dehydration of drying chambers with formaline and of sounds with calcium chloride. M. BONNET. J. d'urol. med. et chir., 1923, xv, 111.

SURGICAL TECHNIQUE

Operative Surgery and Technique; Postoperative Treatment

Pre- and postoperative care. P. GILBERTI. Policlin., Rome, 1923, xxx, sez. prat., 335.

Pre- and postoperative treatment in surgical lesions of the abdomen. R. K. BUFORD. Internat. J. Surg., 1923, xxxvi, 116.

The principles of the care of surgical patients. G. M. BELCH. Am. J. Clin. Med., 1923, xxx, 255, 327.

Aseptic methods for gastro-intestinal operations. F. CINQUEMANI. Arch. ital. de chir., 1922, vi, 445.

A consideration of abdominal drainage. E. J. MCCORMICK. Ohio State M. J., 1923, xix, 163.

A new technique for the closure of the abdomen. R. E. PASMAN. Surg., Gynec. & Obst., 1923, xxxvi, 416.

Postoperative treatment. W. L. MARTIN. U. S. Naval M. Bull., 1923, xviii, 351.

Comparative investigations of isotonic salt and dextrose solutions. E. DEUTTMANN. Beitr. z. klin. Chir., 1923, cxxviii, 68.

Disfiguring scars—prevention and treatment. G. M. DORRANCE and J. W. BRANSFIELD. Am. J. M. Sc., 1923, clxv, 462.

Handbook of general surgery. H. VON TAPPEINER. Leipzig: Klinkhardt, 1922.

Atlas of general surgery. G. MARWEDEL. Munich: Lehmann, 1923.

General plastic surgery. J. S. DAVIS. Ann. Surg., 1923, lxxvii, 257.

Relation of absence of vitamins to wound healing. B. ISHIDO. Arch. f. path. Anat. etc., 1922, ccxl, 241.

The prophylactic use of ether in the abdominal cavity at laparotomy to promote postoperative intestinal peristalsis. K. FRANKENSTEIN. Monatsschr. f. Geburtsh. u. Gynaek., 1923, lxi, 180.

Magnesium sulphate as a sedative. P. G. WESTON and M. Q. HOWARD. Am. J. M. Sc., 1923, clxv, 431. [77]

The paraffin treatment of burns. L. REBAUDI. Muenchen. med. Wchnschr., 1923, lxx, 179.

Some problems of industrial surgery. W. L. FINTON. J. Michigan State M. Soc., 1923, xxi, 138.

Antiseptic Surgery; Treatment of Wounds and Infections

The preparation of the field of operation and prophylaxis against infection. P. ROSENSTEIN. *Zentralbl. f. Chir.*, 1923, I, 170.

A new iodine solution in wound treatment. S. LASKOWNICKI and J. MOSTOWY. *Polska gaz. lek.*, 1922, i, 877.

The treatment of suppurative wounds with hypertonic salt solution. W. M. NASAROW and N. N. SSAMARIN. *Verhandl. d. Russ. Chir. Kong.*, Petrograd, 1922.

Anæsthesia

Anæsthesia. L. W. JACKSON. *J. Nat. M. Ass.*, 1923, xv, 27.
The anæsthetic action of pure ether. H. H. DALE, C. F. HADFIELD, and H. KING. *Lancet*, 1923, cciv, 424.

A study of iso-agglutinins before and after ether anæsthesia. J. G. HUCK and S. M. PEYTON. *J. Am. M. Ass.*, 1923, lxxx, 670.

General anæsthesia induced with ethyl chloride. R. REDING. *Arch. franco-belges de chir.*, 1923, xxvi, 223.

Remarks on nitrous oxide anæsthesia. L. AMBARD and A. CAILLET. *Arch. d. mal. d. reins et d. organes genitaux-urinaires*, 1923, i, 360.

The technique of nitrous oxide anæsthesia. A. LORAIN. *Arch. d. mal. d. reins et d. organes genitaux-urinaires*, 1923, i, 339.

The physiological effect of ethylene, a new gas anæsthetic. A. B. LUCKHARDT and J. B. CARTER. *J. Am. M. Ass.*, 1923, lxxx, 765.

A new method of inducing narcosis. C. J. GAUSS and H. WIELAND. *Klin. Wchnschr.*, 1923, ii, 158.

Narcosis and acidosis. P. GYOERGY and H. VOLLMER. *Klin. Wchnschr.*, 1922, i, 2317.

Arterial pressure in the different types of anæsthesias. J. B. M. ROBLEDO Y SANZ. *Rev. españ. de cirug.*, 1922, iv, 344. [77]

Liver changes after mixed narcosis: the significance of postoperative fatalities. H. SCHNITZLER. *Arch. f. path. Anat. etc.*, 1922, ccxl, 220.

Further experience with synergistic analgesia. G. T. TYLER. *South. M. J.*, 1923, xvi, 199.

The freezing of nerves. B. VALENTIN. *Med. Klin.*, 1922, xviii, 1337. [77]

Local and regional anæsthesia in major surgery. W. J. HUME. *Kentucky M. J.*, 1923, xxi, 132.

Deterioration of procaine solutions. M. L. BONAR. *J. Lab. & Clin. Med.*, 1923, viii, 391.

Butyn—a new local anæsthetic. R. A. GRIFFITH. *Am. J. Clin. Med.*, 1923, xxx, 173.

Death after novocaine anæsthesia. R. EIDENS. *Arch. f. klin. Chir.*, 1923, cxvii, 603.

Blood-sugar determinations in cases of operations performed under local anæsthesia and ether anæsthesia. H. DEWES. *Arch. f. klin. Chir.*, 1922, cxvii, 173. [77]

Splanchnic anæsthesia. P. L. MIRIZZI. *Rev. méd. d. Rosario*, 1922, xii, 347. [78]

The use of paravertebral nerve block anæsthesia in general surgery. W. R. MEEKER. *Minnesota Med.*, 1923, vi, 138. [78]

Supra-umbilical spinal anæsthesia. M. FASANO. *Arch. ital. di chir.*, 1922, vi, 507. [78]

A clinico-statistical contribution on spinal and local anæsthesia from the Aquila Hospital. G. CIAPRINI. *Pol. clin.*, Rome, 1923, xxx, sez. prat. 111. [78]

Report of a series of anæsthesias in a small hospital. H. G. STETSON. *Boston M. & S. J.*, 1923, clxxxviii, 450.

The relation of anæsthesia to medicine. E. A. TYLER. *Hahneman. Month.*, 1923, lviii, 238.

Surgical Instruments and Apparatus

A new suction apparatus. B. HERZ and K. STERN. *Muenchen med. Wchnschr.*, 1923, lxx, 149.

An instrument to facilitate the threading of surgical needles. F. S. RICHARDSON. *Surg., Gynec. & Obst.*, 1923, xxxvi, 419.

An overhead elevator. P. N. JEPSON. *Surg., Gynec. & Obst.*, 1923, xxxvi, 418.

A simplified towel clip. L. M. STEARNS. *Surg., Gynec. & Obst.*, 1923, xxxvi, 420.

PHYSICO-CHEMICAL METHODS IN SURGERY

Roentgenology

Glass retained in the hand and foot. A. S. RISSE. *Am. J. Roentgenol.*, 1923, x, 210.

Radiation. L. J. RAVENEL. *J. South Carolina M. Ass.*, 1923, xix, 432.

Roentgen therapy for the specialist in other professions and for practitioners of medicine. R. LENK. *Berlin: Springer*, 1922.

The scope of X-ray therapy in naval practice. E. L. WHITEHEAD. *U. S. Naval M. Bull.*, 1923, xviii, 309.

Roentgen-ray dosage in the treatment of surgical diseases. JUENGLING. *Strahlentherapie*, 1922, xiv, 634. [80]

Studies on the changes produced by the roentgen rays in inflamed connective tissue. A. A. MAXIMOW. *J. Exper. Med.*, 1923, xxxvii, 319. [80]

The increased absorption of the X-rays by vitally stained white rats. W. M. BALDWIN. *J. Exper. Med.*, 1923, xxxvii, 357.

Advances in roentgentherapy, with special reference to high voltage homogeneous rays. W. H. DIEFFENBACH. *N. York M. J. & Med. Rec.*, 1923, cxvii, 354.

The basic principles of deep X-ray therapy. L. S. GOIN. *Illinois M. J.*, 1923, xliii, 237.

On the physical principles of the alpha ray therapy. V. F. HESS. *J. Radiol.*, 1923, iv, 78.

Deep roentgen therapy. C. B. WARD. *Northwest Med.*, 1923, xxii, 81.

Advances in radiation therapy of deep-seated tumors. R. H. STEVENS. *J. Michigan State M. Soc.*, 1923, xxi, 124.

Statistics and technique in the treatment of malignant disease of the skin by radiation. H. MORROW and L. TAUSIG. *Am. J. Roentgenol.*, 1923, x, 212.

The effect of X-rays and radium rays in malignancy. H. SWANBERG. *Illinois M. J.*, 1923, xliii, 205.

Biological investigations of the effect of irradiation on carcinoma. F. KOK and K. VORLAENDER. *Strahlentherapie*, 1922, xiv, 497. [81]

X-ray protection. V. E. PULLIN. *J. Roy. Army Med. Corps, Lond.*, 1923, xl, 198.

Possible dangers in connection with the use of X-rays and how to avoid them. J. S. SHEARER. *Am. J. Roentgenol.*, 1923, x, 240.

Two X-ray ulcers treated by milk injections. L. HEINER. *Roentgenologia*, 1922, i, 68.

Investigations concerning epithelium formation due to the roentgen rays. H. F. O. HABERLAND. *Klin. Wchnschr.*, 1923, ii, 353.

Radium

The use of radium in the treatment of disease. D. TURNER. *Brit. M. J.*, 1923, i, 464.

The use of plastic substances in the radium therapy of superficial surfaces. A. ESGUERRA, O. MONOD, and G. RICHARD. *Repert. de med. y cirug.*, 1923, xiv, 152.

The rôle of radium needles in the treatment of neoplastic diseases. W. L. CLARK. *Am. J. Roentgenol.*, 1923, x, 204.

Some observations on radium therapy in cancer at the Radium Institute, Paris. M. W. THEWLIS. *Rhode Island M. J.*, 1923, vi, 39.

Radium in sarcoma. W. H. B. AIKINS. *Med. Press*, 1923, n.s. cxv, 213.

The control of cancer. A. PRIMROSE. *Canadian M. Ass. J.*, 1923, xiii, 160.

Recent cancer therapy. F. C. WOOD. *Canadian M. Ass. J.*, 1923, xiii, 152.

Miscellaneous

Surgical diathermy in its relation to radiotherapy. G. KOLISCHER and H. KATZ. *J. Radiol.*, 1923, iv, 76.

Ultra-violet radiation. A. J. PACINI. *J. Radiol.*, 1923, iv, 80.

MISCELLANEOUS**Clinical Entities—General Physiological Conditions**

The pathologic changes produced in those rendered unconscious by electrical shock and the treatment of such cases. B. SPILSBURY, S. JELLINEK, and E. P. CUMBERBATCH. *Arch. Radiol. & Electrotherapy*, 1923, xxvii, 316.

The treatment of traumatic shock. G. JEANNENEY. *Arch. franco-belges de chir.*, 1923, xxvi, 157.

Sudden death from anaphylactic shock. F. W. SUMNER. *Brit. M. J.*, 1923, i, 465.

Studies in exhaustion: physical trauma. G. W. CRILE. *Arch. Surg.*, 1923, vi, 489. [82]

A case of scorbutic infantilism. M. CASSIDY. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Clin. Sect., 16.

Raynaud's syndrome in a non-syphilitic infant, with a remarkable family history. F. P. WEBER. *Brit. J. Child. Dis.*, 1923, xx, 25.

A case of acromegaly in a girl aged 16, with congenital heart disease (aortic stenosis). E. STOLKIND. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Clin. Sect., 22.

The treatment of leg ulcers and of varices. F. BLANCHOD. *Rev. méd. de la Suisse Rom.*, 1923, xliii, 155.

A contribution to the knowledge of enzymes in normal and pathologic human urine, with special reference to diabetes and Addison's disease. D. MAESTRINI, C. LUCHETTI, A. GOLAMINI, and P. LUGINI. *Riforma med.*, 1923, xxxix, 265.

Radiation of the adrenals in diabetes. I. SZABÓ. *Roentgenologia*, 1922, i, 65.

Insulin. F. J. BANTING. *J. Michigan State M. Soc.*, 1923, xxi, 113. [82]

Noma in private practice. D. BÁTORI. *Gyógyászat*, 1923, 20.

The development of tumors. E. SCHWARZ. *Deutsche med. Wchnschr.*, 1923, xlix, 108.

Traumatic epithelial cysts. K. BLOND. *Arch. f. klin. Chir.*, 1922, cxv, 695. [82]

Immunity in cancer. E. P. ROBINSON. *Am. J. Clin. Med.*, 1923, xxx, 180.

Multiplex pathology and the cancer problem. W. S. BAINBRIDGE. *J. Nat. M. Ass.*, 1923, xv, 16.

Fibrolysin. H. REH. *Deutsche med. Wchnschr.*, 1923, xlix, 151.

The relation of clinical to necropsy diagnosis in cancer and the value of existing cancer statistics. H. G. WELLS. *J. Am. M. Ass.*, 1923, lxxx, 737.

Epitheliomata—prophylactic and curative measures. W. D. JAMES and A. W. JAMES. *Internat. J. Surg.*, 1923, xxxvi, 109.

Concerning lentigo maligna, a rare special form of skin carcinoma. G. KOB. *Beitr. z. klin. Chir.*, 1922, cxxvii, 709.

A section of an excised pigmented mole showing early malignancy. E. G. G. LITTLE. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Dermatol., 59.

Primary adenocarcinoma of the sweat glands. A. CZARNOCKI. *Polska gaz. lek.*, 1922, i, 970.

Refraction tests of the serum in cases of carcinoma. A. KNIPFER. *Semana méd.*, 1923, xxx, 479.

Cancer and sarcoma. A. MORALES. *Siglo med.*, 1923, lxx, 277.

A case of Hodgkin's disease developing in a girl of 9 years who is living and in excellent health after six years of X-ray treatment. D. M. COWIE. *Med. Clin. N. Am.*, 1923, vi, 1355.

A case of lymphogranulomatosis with rupture through the skin, with a review of the literature. H. MEYERINGH. *Deutsche Ztschr. f. Chir.*, 1922, clxxvi, 185.

The importance of ascariasis in surgical practice. O. CIGNOZZI. *Semana méd.*, 1923, xxx, 479.

The surgical treatment of hydatid cyst. D. MENIKER. *J. de chir.*, 1923, xxi, 170.

General Bacterial Infections; General Mycotic Infections

The pathology and therapy of severe, acute, surgical infectious disease. A. LANG. *Ergeb. d. Chir. u. Orthop.*, 1922, xv, 718.

Cholesterinæmia in erysipelas and its relation to ovarian function. S. NOVILLO. *Arch. de med., cirug. y especial.*, 1923, xi, 537.

Therapeutic effect of local inflammations and abscess formation in sepsis. F. ROLLY. *Muenchen. med. Wchnschr.*, 1923, lxx, 139.

New therapeutic points of view in the treatment of septic diseases. H. EUFINGER. *Muenchen. med. Wchnschr.*, 1923, lxx, 112.

Effect of protein therapy on septic processes. R. KOCH. *Muenchen. med. Wchnschr.*, 1923, lxx, 206.

The therapeutic action of bismuth in syphilis. C. LEVADITI. *Lancet*, 1923, cciv, 639.

The treatment of tetanus. M. C. MIGUEL. *Arch. de med., cirug. y especial.*, 1923, x, 514.

Actinomycosis due to a variety of causative organisms. K. H. ERB and R. WIGAND. *Ztschr. f. Hyg. u. Infektionskrankh.*, 1922, xcvi, 174.

Studies in the cutaneous reaction and complement fixation in actinomycosis. J. WALKER. *Mitt. a. d. Grenzgeb. d. Med. u. Chir.*, 1923, xxxvi, 55.

Actinomycosis: diagnosis and treatment. P. A. WHITE. *J. Iowa State M. Soc.*, 1923, xiii, 105. [84]

Curative inoculation of actinomycosis. F. F. FRIEDMANN. *Muenchen. med. Wchnschr.*, 1923, lxx, 176.

The treatment of anthrax infections. A. MCGLANNAN. *Ann. Surg.*, 1923, lxxvii, 263.

The treatment of cutaneous anthrax, with a few remarks on prophylaxis. J. C. REGAN. *N. York State J. M.*, 1923, xxiii, 113. [83]

Surgical Pathology and Diagnosis

Palpation in the outlining of organs and determining pathologic conditions causing different degrees of density in the same organ: light touch palpation. F. M. PORTINGER. *Ann. Clin. Med.*, 1923, i, 294.

A rapid technique for preparing histologic sections by the paraffin method. V. D. KEISER. *J. Am. M. Ass.*, 1923, lxxx, 690. [84]

The swelling of tissues changed by disease. W. VON GAZA and H. WESSEL. *Ztschr. f. d. ges. exper. Med.*, 1923, xxxii, 1.

Causes of sarcoids of fibroconnective tissue, clinical and anatomo-pathologic studies. R. DE BATTISTI and B. FACCINI. *Policlin.*, Rome, 1923, xxx, sez. chir., 128.

Experimental Surgery

Some recent developments in surgical research. J. E. SWEET. *Pennsylvania M. J.*, 1923, xxvi, 396.

Hospitals: Medical Education and History

The modern hospital in the city plan. P. W. FOSTER. *Mod. Hosp.*, 1923, xx, 205.

Converting an old house into a hospital. C. A. ERICKSON. *Mod. Hosp.*, 1923, xx, 230.

The relation between hospital building cost and cost of equipment. S. S. GOLDWATER. *Mod. Hosp.*, 1923, xx, 215.

Some principles common to large and small hospitals. D. STEWART. *Mod. Hosp.*, 1923, xx, 258.

The laboratory quarters and equipment of a modern hospital. M. KAHN. *Mod. Hosp.*, 1923, xx, 246.

The laboratory—its relation to the nursing service. H. J. GOECKEL. *Trained Nurse & Hosp. Rev.*, 1923, lxx, 226.

General principles in planning dispensaries. M. M. DAVIS. *Mod. Hosp.*, 1923, xx, 221.

The small hospital morgue and autopsy room. R. RESLER. *Mod. Hosp.*, 1923, xx, 228.

Planning the equipment of a hospital laundry. W. T. WILLIAMS. *Mod. Hosp.*, 1923, xx, 284.

What about electric sterilizers for the hospital? W. B. UNDERWOOD. *Mod. Hosp.*, 1923, xx, 288.

Hospital screening. E. M. BLUESTONE and J. TURNER. *Mod. Hosp.*, 1923, xx, 282.

Hospital heating and ventilation. H. R. INNIS. *Mod. Hosp.*, 1923, xx, 243.

Modern hospital illumination. A. L. HIXON. *Mod. Hosp.*, 1923, xx, 292.

Social service problems in the hospital. A. H. WALKER. *Mod. Hosp.*, 1923, xx, 264.

A social service ward for women and children: a solution of the family problems of venereal disease. V. C. PEDERSEN. *N. York M. J. & Med. Rec.*, 1923, cxvii, 345.

A nursery for premature infants. J. R. HOWARD, JR. *Mod. Hosp.*, 1923, xx, 254.

Developing satisfactory interne service. C. W. MUNGER. *Mod. Hosp.*, 1923, xx, 266.

Central school of nursing in connection with universities. C. E. GRAY. *Mod. Hosp.*, 1923, xx, 272.

Cutting the cost of institutional service. C. E. MC-COMBS. *Mod. Hosp.*, 1923, xx, 232.

The dawn of surgery: its armamentarium. J. WRIGHT. *N. York M. J. & Med. Rec.*, 1923, cxvii, 361.

Municipal physicians of Bordeaux in the middle ages. BERTIN-ROULLEAU. *J. de med. de Bordeaux*, 1923, xcv, 208.

Statutes and regulation of the Master Apothecaries of Bordeaux. P. BERTIN-ROULLEAU. *J. de med. de Bordeaux*, 1923, xcv, 158.

Commemoration of Pasteur's centenary at Brussels. *Bruxelles med.*, 1923, iii, 451.

Some of the fundamental contributions of Pasteur to bacteriology. W. L. HOLMAN. *California State J. M.*, 1923, xxi, 99.

Pasteur's discovery of the preventive treatment for rabies. W. H. KELLOGG. *California State M. J.*, 1923, xxi, 104.

Pasteur's contribution to chemistry. C. ALSBERG. *California State J. M.*, 1923, xxi, 97.

Louis Pasteur, his contribution to anthrax, vaccination, and the evolution of a principle of active immunization. J. G. FITZGERALD. *California State J. M.*, 1923, xxi, 101.

Noah Webster as epidemiologist. A. S. WARTHIN. *J. Am. M. Ass.*, 1923, lxxx, 755.

The first nephrotomy. H. BERNARD. *J. de med. de Bordeaux*, 1923, xcv, 207.

Legal Medicine

A recent decision concerning refusal to consent to operation. E. BAUMANN. *Aerzt. Sachverst.-Ztg.*, 1923, xxix, 28, 38.

INTERNATIONAL ABSTRACT OF SURGERY

AUGUST, 1923

ABSTRACTS OF CURRENT LITERATURE SURGERY OF THE HEAD AND NECK

EYE

Fox, L. W.: Heterophoria. *Am. J. Ophth.*, 1923, vi, 110.

Fox states that heterophoria is a constant accompaniment of binocular single vision, although it may not always cause symptoms. The production of symptoms is due to a general run-down condition as in fatigue, exhaustion from disease, or improperly fitted glasses.

Maddox is quoted as stating that if lateral deviations are complicated by hyperphoria, the vertical deviation should be corrected first as the lateral will then probably correct itself. Quoting de Schweinitz, Fox emphasizes the fact that the muscles should be tested after the refractive error has been fully determined and with the full correction on. Frequently the patient will accept a greater correction of hypermetropia at the postcyclopegic examination if a prism is properly placed to correct the heterophoria.

THOMAS D. ALLEN, M.D.

Jackson, E.: The Transfer of Function of the Ocular Muscles. *Am. J. Ophth.*, 1923, vi, 117.

The author discusses the transference of muscles in general and reviews in particular the history of transference of the ocular muscles.

When ptosis is present, either the superior rectus or the frontalis is usually employed. When the superior rectus is paralyzed, the upper portions of the internus and externus may be used, being slit back from their insertion about $2\frac{1}{2}$ cm., and attached to the paralyzed tendon close to its insertion or to the sclera. Similarly the inferior rectus may be replaced by portions of the internus and externus.

If the internal or external rectus is paralyzed, the median or lateral portion of the superior and inferior recti may be used similarly. If the superior oblique is paralyzed, the temporal portion of the superior rectus is given a slightly different insertion. If there is a complete third-nerve paralysis, the superior

oblique can be removed from its normal attachment and sutured to the tendinous attachment of the internus, the pulley cut away, and the muscle shortened.

THOMAS D. ALLEN, M.D.

French, R. F.: Diminishing Accommodation, Artificially Produced. *J. Iowa State M. Soc.*, 1923, xiii, 135.

French reports some interesting observations on the use of mydriatics and cycloplegics. A questionnaire sent out to many ophthalmologists showed that 75 per cent employ atropine, and 20 per cent, homatropine in the cases of children, while 90 per cent employ homatropine in the cases of adults. When homatropine is used, the power of accommodation is lost in about forty-seven minutes, while with the use of atropine, one hundred and thirteen minutes are required. With the use of homatropine, maximum dilatation of the pupil occurs in twenty-seven minutes, and with the use of atropine it occurs in forty-three minutes. The general average of time required for the loss of accommodation shows that homatropine is more quickly effective. After the instillation of eserine the power of accommodation begins to return before the sphincter of the pupil responds.

VIRGIL WESCOTT, M.D.

Dunn, P.: The Toxæmic Aspect of Ocular Disease. *Lancet*, 1923, cciv, 696.

The author calls attention to the toxic action of the colon bacillus and the relation of a putrefactive intestinal condition to ocular disease. He states that thyroid insufficiency may be translated into failure of the thyroid to protect the body against a source of toxæmia; and that heretofore it has been the custom to look for a recognized focus of septic infection such as the teeth, tonsils, etc.

The possibility that an iridocyclitis may arise from another source of toxæmia, in the course of which hypothyroidism is manifest, has been overlooked. As a notable example of the fact that the

ciliary body is peculiarly responsive to the effects of toxæmic foci, Dunn cites the condition known as chronic iridocyclitis, and notes that closely allied to these symptoms are those accompanying interstitial keratitis in children. In the latter cases confirmatory evidence of a syphilitic taint is often lacking. The results of the author's treatment of parenchymatous keratitis in children, which includes rest in bed, a generous diet, and the administration of 3 gr. of thyroid gland twice daily, has strengthened his belief that this condition is mainly a toxæmic manifestation.

In addition Dunn advances the theory that the condition known as "sympathetic ophthalmia" may be of toxic origin, the focus of infection being the intestinal tract. The causal agent may be a saprophytic organism which becomes virulent only when exposed to a toxic element. In the presence of intestinal stasis, the colon bacillus, normally saprophytic, becomes pathogenic and completes the vicious circle of pervading toxæmia.

In the treatment of toxæmia arising from intestinal putrefaction the author uses a benzene derivative, dimethylmethoxyphenol, which destroys the putrefactive organisms in the intestines and allows the bacillus coli to assume their normal character.

A. B. DYKMAN, M.D.

Chéinisse, L.: Injections of Milk in Ocular Therapeutics. (Les injections de lait en thérapeutique oculaire). *Presse méd.*, Par., 1923, xxxi, 178.

Protein therapy seems to have given its best results in certain diseases of the eye.

Chéinisse refers to an overlooked thesis on milk therapy in the Russian literature by Svatikova-Achkinasi. This author collected 341 cases of various affections of the eye which were treated by intramuscular injections of milk. Good results were obtained in 281 (85.2 per cent). The best effects were observed in affections of the uveal tract and cornea.

Milk injections have been of great benefit in gonococcal conjunctivitis in the adult. Scrofulous keratitis is also very favorably influenced, but in parenchymatous keratitis the effects are much less constant. The injections have no marked influence on the process of interstitial infiltration of the cornea. Herpes of the cornea and the keratitis accompanying ophthalmic zona seem to be favorably influenced. Very good results have been obtained in acute iritis, but in chronic iridocyclitis the outcome has been less favorable. In infections of the eye consecutive to injuries or operations, the results were excellent.

In the technique used by the author, fresh milk is boiled for four minutes and then injected in the flank or thigh muscles at a temperature of 37 to 38 degrees C. For adults the dose ranges from 2½ to 10 c.cm. In the cases of children a higher dosage is generally used as a weak dosage has little effect. The injections are repeated at intervals of two or three days. It is generally best to wait until the

reaction provoked by one injection has fully subsided before making another. The total number of injections should not exceed five. The maximum effect follows the first injections.

Although milk injections are usually not dangerous, it is well to be prepared for any grave reaction which might result. Such injections should not be given in the cases of persons who are cachectic or those with cardiac disease, advanced arteriosclerosis, tuberculosis, or nephritis.

W. A. BRENNAN.

Edridge-Green, F. W.: Some Curious Phenomena of Vision and Their Practical Importance. *Med. Press*, 1923, n.s. cxv, 254.

The visual purple is found only in the rods. Therefore it was considered not essential to vision because only cones are found at the fovea. The rods and cones dip into a thin layer of fluid which is kept in place by the external limiting membrane. The visual purple diffuses through this fluid and is distributed to every part of the outer layer of the retina. Visual purple is regenerated from the pigment cells and most rapidly when exposed to light. It has been possible to take photographs by means of the visual purple. A rabbit retina was exposed to a window with bars. The parts of the retina corresponding to the light parts of the window were bleached. The decomposition of the photo-chemical film sensitized by the visual purple stimulates the ends of the cones, a visual impulse being set up which is conveyed through the optic nerve fibers to the brain. When the light is diminished, the visual purple is not used and accumulates.

The movement of the after-image is due to a movement of the eye itself or the compression of the globe by the muscles squeezing the photo-chemical film. There is a very distinct difference between moving the eye from one object to another and moving an object before the eyes. There are six stages noted in observing a bright object for a short duration, due to the fact that cones are more numerous in the fovea and that the visual purple must flow in from the periphery. The old theory that the rods are for perception in dim light is considered wrong because it is based on misstatements. There is no animal with only rods or cones in the retina. The periphery of the retina is not color blind. In dark adaption the eye is not totally color blind.

VIRGIL WESCOTT, M.D.

Kahn, W. W.: Asthenopic Reflex Manifestations Between the Eyes and Teeth. *J. Am. M. Ass.*, 1923, lxxx, 1134.

Kahn reports nine cases of asthenopia due to diseased teeth, in which a refraction test had been made very carefully, the symptoms of eye strain had not been relieved by repeated instillations of atropine, and the refraction was determined again with the use of a stronger cycloplegic. A careful physical examination in all cases was negative. In several cases the dentist reported that the teeth were in good condition but roentgenographic ex-

amination showed disease of the teeth. After the removal of the diseased teeth the symptoms of asthenopia and neurasthenia disappeared.

Four cases of pain in or about the teeth or gums are also reported; after refraction the pain disappeared. In one case, that of a 19-year-old stenographer, it was necessary to prescribe additional plus lenses for near work. VIRGIL WESCOTT, M.D.

Posey, W. C.: Alopecia and Poliosis of the Eyelids. *J. Am. M. Ass.*, 1923, lxxx, 1204.

Posey reports a case of alopecia and another of poliosis of the eyelids and reviews the literature. The case of alopecia is of interest because it was without local inflammation of the lid. In the case of poliosis there was no history of injury or shock. The length of time elapsing from the date of shock to the appearance of the discoloration varies from a few hours to several months. In severe cases of iridocyclitis there may be blanching of the cilia of the lids.

VIRGIL WESCOTT, M.D.

LaGrange, H.: Conjunctivitis of Anaphylactic Origin (Conjonctivite d'origine anaphylactique). *Presse méd.*, Par., 1923, xxxi, 112.

LaGrange reports a case of conjunctivitis which was due undoubtedly to anaphylaxis. For ten years the patient had suffered from severe attacks of urticaria with swelling of the eyelids, chemosis, and itching of the conjunctiva. These always came on when he was bringing in his wood supply from the forest. A skin test with finely powdered oak bark was followed by a decrease in the leucocyte count, an urticarial rash, and pruritus. When the patient again carried in wood after recovery from this test, the symptoms recurred. VIRGIL WESCOTT, M.D.

Wright, J. W.: Solarization in Trachoma. *Am. J. Ophth.*, 1923, vi, 279.

Acting upon the principle that heat, light, and drying are among the most potent bactericides, the author has been using them as therapeutic agents in the treatment of trachoma. The results have been encouraging. In addition to the usual local applications to the ulcers and the conjunctiva, concentrated light from the sun is employed when possible, and when not possible, the concentrated light from an electric bulb.

Concentrated solar rays are much more potent on ulcers than artificial light. Great care must be exercised that the heat is not too great. The length of time it will be safe to apply the rays to one spot, such as a corneal ulcer, can be determined by testing them on the back of the hand. A 10 or 12 diopter convex lens is used for concentration. Every part of the granulated conjunctiva should be passed over slowly.

No theory as to the action of the rays is offered. Their bactericidal effect and the stimulation they exert on the conjunctival glands causing absorption of the granules are probable factors. The rays are applied twice a week. Rarely more than three ap-

plications have been found necessary to clear up an ulcer. As soon as the gray, ragged edges of the trachomatous ulcer present a clean-cut depression with a small leash of vessels running to it from the conjunctival margin the radiation is stopped.

A. B. DYKMAN, M.D.

Poyales, F.: An Epithelial Cyst of the Cornea (Quiste epithelial de córnea). *Prog. de la clin.*, Madrid, 1923, xxv, 86.

Epithelial cysts of the cornea are extremely rare. In an interesting case observed in the author's clinic there was a perforating traumatic lesion of the ciliary body with only slight symptoms of cyclitis. The cornea showed a slight contusion which appeared to involve only the epithelial layer. Under treatment, the inflammation of the ciliary body decreased, but a round transparent mass appeared in the cornea, which had the clinical aspect of a traumatic epithelial cyst. Later, symptoms of cyclitis developed anew and the epithelial cyst progressed to the extent that it deformed the eye and suggested a small partial staphyloma. The cystic distention of the cornea and the ciliary lesion ultimately caused an inflammatory condition which led the author to enucleate the eye to prevent sympathetic disturbances.

Histologic examination showed that the traumatism involved only the epithelial layer and Bowman's membrane. Rupture of Bowman's membrane was followed by herniation.

W. A. BRENNAN.

Gowland, A., and Gallino, J. A.: A Fixation Abscess in a Case of Severe Iridocyclitis (Absceso de fijación en un caso di iridociclitis grave). *Rev. Asoc. méd. argent.*, 1922, xxxv, 788.

The patient, a man of 18 years, received a perforating wound of the cornea of the right eye at the limbus. The further evolution of the case led to the diagnosis of traumatic iridocyclitis. Atropine, warm fomentations, aspirin, and mercurial injunctions were ordered. The condition was such that enucleation seemed indicated. The remedial measures mentioned and daily intramuscular injections of 10 c.cm. of milk were without beneficial effect.

As a last resort before operation the authors made an injection of essence of turpentine to cause a fixation abscess in the thigh. Severe symptoms followed but improvement in the eye was noted from the next day. The pain completely ceased and vision improved. Locally the abscess evolved characteristically with the formation of a large collection of pus. The pus was drained. By the ninth day there was complete disappearance of the eye symptoms and the abscess in the thigh was in process of cicatrization.

W. A. BRENNAN.

Chance, B.: The Etiology of Uveitis. *Atlantic M. J.*, 1923, xxvi, 528.

Chance describes uveitis as an endophthalmia because, while one part of the uveal tract may be involved to a greater degree than the others, there

is apt to be involvement of the whole tract even when only one portion is inflamed. "Iridocyclitis" and "chronic uveitis" are other terms for the same condition. The exudate on the posterior surface of the cornea, aqueous and vitreous, is characteristic. Pain may be absent when the choroid is involved. There may be one attack and then complete recovery; there may be repeated attacks each year; the attacks may be so severe as to result in total loss of vision.

Chronic iridocyclitis occurs most commonly between the twentieth and fortieth years of age. It is more common in females than in males. Both eyes may be involved at different times, but as a rule only one is affected. The most common causes of uveitis are tuberculosis, syphilis, gonorrhoea, the acute infectious diseases, and focal infections. Chronic uveitis rarely occurs with acute rheumatic fever. Affections of the cornea and uvea occurring with the various forms of arthritis are due to the same infection.

VIRGIL WESCOTT, M.D.

Hektoen, L.: Immune Reaction of the Lens. *Am. J. Ophthalm.*, 1923, vi, 276.

The results of the author's experiments have shown that in the precipitin test the lens is organ-specific and not species-specific. It is the one tissue in the eye that does not show any species-specific elements. Also the two globulins of the eye, alpha crystallin and beta crystallin, are immunologically distinct. Experiments with cataractous lenses in precipitin reactions have shown that such lenses react almost as well with antilens serum as normal lenses.

Efforts to produce lens precipitins in normal rabbits by injecting solutions of rabbit lens have so far been without positive results. The use of rabbits previously injected with other lenses, human or bovine, called forth a renewed production of precipitin for rabbit lens as well as for other lenses that were being tested.

The author refers to the experiments of Kodama in regard to the anaphylactic reaction of tissues of bovine eyes. The difficulty arises in estimating correctly the minor manifestations of anaphylaxis. Kodama determined that so far as the anaphylactic reactions are concerned there is no absolute organ-specificity of the eye tissues. Inasmuch as the eye tissues are embryologically and functionally related, this is not surprising.

Kodama found marked differences in the range of the anaphylactic reaction of the eye tissues. The lens is most limited. Next comes the uvea, followed by the optic nerve, retina, cornea, and vitreous. On the basis of these results he emphasizes that in sympathetic ophthalmia we should not assign an exclusive rôle to the uveal pigment. The possibility that certain proteins of the eye, by virtue of their difference from the proteins of the blood, give rise under certain conditions to general reactions of the nature of self sensitization of the body, may be of great importance in ophthalmology.

A. B. DYKMAN, M.D.

Green, J.: Factors of Safety in the Operation for Cataract. *J. Missouri State M. Ass.*, 1923, xx, 83.

The classical or extracapsular operation for the removal of a cataract is incomplete as it leaves a varying amount of lenticular material. Peripheral masses hidden behind the iris and enclosed between the posterior and the remains of the anterior capsule may swell on contact with the aqueous and appear in the pupillary space. If this cortical material is of the "sticky" variety, it may give rise to iritis or iridocyclitis, possibly resulting in a closed pupil, a dense secondary cataract, or secondary glaucoma due to blocking of the filtration angle.

Much interest has been taken in the intracapsular operation of Smith of India. Smith's pupils, however, have not adhered strictly to his technique. From replies to a questionnaire sent persons operated upon by Smith at St. Louis it was found that 56 per cent have moderate to good vision, while in 44 per cent the operation failed.

In the author's opinion, the intracapsular method as practiced at present is a very safe procedure.

In the interests of safety in the cataract operation conditions indicated by high blood pressure, glycosuria, albuminuria, etc., must be taken into consideration and corrected previously by the removal of foci of infection, proper diet, or prolonged rest. In cases of chronic bronchitis the operation should be performed at a season when the patient is subjected to the least irritation. Persons with this condition and aged patients particularly, should not be kept in bed after the operation any longer than necessary. In cases of diabetes the urine should be made sugar-free before the cataract operation is undertaken, and in cases of active syphilis operation should be avoided.

With regard to pre-operative conditions in the eye the author states that cultures of the conjunctival sac should be negative for streptococci and pneumococci, even though a few colonies of staphylococcus or xerosis bacillus may be present, and there should be no evidence of dacryocystitis. Evacuation and curettage of minute cysts of the palpebral conjunctiva, emptying of the meibomian ducts by thumb and finger pressure, and massage several days before the operation are indicated. The use of a 4 per cent solution of protargol twice prior to operation, as suggested by Verhoeff, is a good routine for local antisepsis. Spastic entropion may be averted by painting a line of contractile collodion on the skin of the lower lid, parallel with the palpebral margin.

Preliminary iridectomy performed four to eight weeks previous to the removal of the lens will simplify the extraction, may hasten the maturation of an unripe lens, and will lessen the danger of post-operative iritis. Capsulotomy performed from eight to twenty-four hours prior to extraction is a means of ripening an immature cataract rapidly.

Squeezing is best avoided by using a speculum instead of lid retractors, by injecting 1 per cent

novocaine under the conjunctiva ten minutes before making the incision, by giving a sedative enema one hour before operation, and by avoiding nervousness or haste in the presence of the patient. Irrigation of the anterior chamber to wash out remnants of cortex is indicated except in the case of a known fluid vitreous or the presentation of vitreous.

A binocular bandage re-enforced by a Ring cataract mask should be left in place for seventy-two hours. At the time of the first inspection, 1 per cent atropine and 5 per cent protargol should be instilled. The bandage should then be re-applied for two days, and the patient allowed to get up. On the fifth day, the unoperated eye may be uncovered, and on the tenth day the patient may be discharged from the hospital.

Iritis and iridocyclitis should be treated by local remedies and large doses of hexamethylamin. Resorption of cortical masses is promoted by the use of warm compresses and dionin, but dionin may act as an irritant if used before the fourth week after operation.

The use of silver nitrate solution instead of a lunar caustic is advised. V. E. DUDMAN, M.D.

Hoffman, J. N.: The Diagnosis of Optic Neuritis Due to Sinus Disease. *N. York M. J. & Med. Rec.*, 1923, cxvii, 42.

The author lays great stress on the importance of a thorough physical examination. He states that useless temporizing is not urged but an accurate effort should be made to find the cause of the condition. The visual fields are the only characteristic findings of optic neuritis due to diseased posterior sinuses; these findings show an absolute scotoma in a large area of relative scotoma. THOMAS D. ALLEN, M.D.

Stieren, E.: Neurofibroma of the Orbit. *Am. J. Ophth.*, 1923, vi, 176.

The patient from whom the tumor described was removed was seen first three months previous to the onset of the symptoms. At this time he showed 6 diopters of hypermetropia in the eye affected as compared with 2 diopters in the other eye. Three months later the hypermetropia had increased to 7.50 diopters and vision had decreased slightly although the fields remained normal. One year later the wearing of a plus 10 diopter sphere was necessary and the color fields were greatly reduced. The form fields remained normal.

The usual methods of ruling out infectious diseases and general conditions were used thoroughly and the diagnosis of tumor of the orbit was made on the following findings: (1) slight and continual increase of proptosis, (2) slight and increasing optic neuritis with some oedema of the retina, (3) increasing hypermetropia, (4) diplopia, and (5) a negative physical examination.

At operation the orbit was entered from the temporal side after resection of a portion of the orbit rim and the tumor mass was removed with the fingers. The postoperative result was very satis-

factory. The hypermetropia receded, the vision and the excursion of the eye improved, and the condition of the optic nerve and retina returned to normal. The pathologist's report was neurofibroma. The author does not venture an opinion as to the nerve from which it originated. THOMAS D. ALLEN, M.D.

Shaw, H. B., Moore, R. F., Bardsley, P., and Others: Discussion on the Differentiation and Prognosis of Arteriosclerotic and Renal Retinitis. *Arch. Ophth.*, 1923, lii, 181.

This is an abstract of a discussion, the main points of which were as follows:

1. There is no such close relationship between changes in the retina and disease in the kidneys as has been commonly supposed.

2. In arteriosclerotic retinitis changes are produced in the arteries by the action of a slow poison, and because of these changes there are occasional slight hæmorrhages.

3. In renal retinitis, so-called, there is a more severe toxæmia which may or may not be of renal origin and may at first cause changes in one eye only but subsequently affects the other eye also. These changes are evidenced by engorgement of the blood vessels, fuzzy white spots, a star formation around the macula, large and small hæmorrhages. When this finding is associated with signs of retinal arteriosclerosis it indicates that a chronic toxæmia has been present and that an acute toxæmia has developed. THOMAS D. ALLEN, M.D.

EAR

MacKenzie, G. W.: Headache from the Standpoint of the Otologist. *Pennsylvania M. J.*, 1923, xxvi, 360.

Middle-ear suppuration rarely produces headaches, but when the suppuration extends beyond the confines of the middle ear, headache is one of the most common symptoms.

Headache may occur in both acute and chronic mastoiditis. It is usually unilateral, but may be bilateral. It is due, no doubt, to the filterable bacterial toxins finding their way into the general circulation, and also to these same toxins reaching the dura mater along the course of the perivascular lymphatics and producing there an extradural irritation.

Headache from simple mastoiditis the author believes is not especially common. Given a case of mastoiditis, simple or chronic, with persistent headache, even though it be a mild one, he is inclined to think of a complication present or impending.

The more common complications of middle-ear suppuration and mastoiditis are abscess of the inner ear, extradural abscess, perisinous abscess, subdural abscess, brain abscess (superficial and deep), thrombophlebitis of the sigmoid, the superior or the inferior petrosal sinus, circumscribed purulent leptomeningitis, diffuse serous meningitis or meningismus, and diffuse suppurative meningo-encephalitis. In none of these complications is headache absent.

Knowledge of this fact should prompt the physician to view any case of middle-ear suppuration presenting the symptom of headache as suspicious and as demanding an exhaustive otologic examination.

In summarizing, the author emphasizes the following points:

1. In uncomplicated middle-ear suppuration, both acute and chronic, headache is not the rule, and in those cases in which it occurs it is never pronounced.

2. In uncomplicated mastoid empyema with insufficient drainage, headache is fairly common.

3. In uncomplicated mastoid empyema with ample drainage, headache is never severe because of the mastoid involvement alone.

4. In every case of middle-ear suppuration, with or without mastoid involvement, the occurrence of headache should prompt the physician to suspect immediately one or another of the several complications referred to.

5. Headache is the most common symptom of every kind of intracranial complication of middle-ear suppuration, and for this reason its presence should always be regarded with suspicion.

MacKenzie believes that in the study of headaches the eye, ear, nose, and throat specialist is more apt than the neurologist to overlook syphilis as an etiological or contributing factor.

Glogau, O.: Nicotine Poisoning of the Middle Ear: A Preliminary Report from Animal Experimentation and Microscopic Findings. *Laryngoscope*, 1923, xxxiii, 262.

The author reviews briefly the history of the nicotine habit and its effect on man from the time John Nico, the French ambassador to Portugal, presented the ground powder of the magic Indian plant, tobacco, to Queen Catherine de Medici, in Paris, 1560.

The report is an introductory one describing the author's technique of experimentation on guinea pigs and pigeons, and is made for the purpose of placing on record the work already done.

Glogau concludes by stating that nicotine poisoning of the inner ear is characterized by certain pathologic changes of the nuclei of the cells of the vestibular ganglion of Scarpa, but he admits that this statement may require considerable modification when the final results of his observations have been obtained.

W. B. STARK, M.D.

Mellinger, W. J.: Diphtheritic Otitis Media. *California State J. M.*, 1923, xxi, 151.

Twelve cases of diphtheritic otitis media are reported. Only one of them was of the virulent type. All of the patients recovered.

The author states that the condition described is not rare although very little is found in the literature relative to it. There is nothing peculiarly characteristic in the symptoms of middle-ear infection due to either the virulent or the non-virulent Klebs-Loeffler bacillus.

The condition would be recognized more easily if cultures were made routinely in all cases of middle-ear infection.

O. M. RORR, M.D.

NOSE

Granger, A.: A New Technique for the Positive Identification of the Sphenoid Sinus and the Ethmoid Cells. *J. Radiol.*, 1923, iv, 105.

The author's work is based upon experimental work with dried skulls, in which the sphenoid and ethmoid cells were filled with opaque media.

A special head rest was used. This consisted of a sheet of bakelite having a triangular opening for the nose, and attached upon a frame in such a way that the bakelite sheet could be securely held over a film holder or cassette. The most advantageous positions were inclined planes of 23 and 107 degrees.

Roentgenograms made at an angle of 23 degrees showed the upper border of the sphenoid sinuses to be on a level with a line formed by the anterior border of the optic groove and the upper roots of the lesser wings of the sphenoid bone. In this view the anterior ethmoidal cells are just below the frontal sinuses.

In the author's opinion the most valuable landmark is obtained at an angle of 107 degrees. This is a line formed by the optical groove, which is crescent shaped and curves downward on either side toward the optic foramen and anterior clinoid processes. At this angle the posterior ethmoidal cells lie above, and the anterior cells below, the shadow cast by the middle turbinate bone.

In the lateral view, the line produced by the greater wing of the sphenoid bone separates the sphenoid sinus from the posterior ethmoid cells. The anterior and posterior ethmoid cells are fairly accurately divided by a line arbitrarily drawn along the shadow cast by the posterior border of the orbital process of the malar bone.

A careful study of the thirty-six roentgenograms published with the article will repay any one interested in a new technique to show this region.

The practicability of the method has not been proved by a large number of clinical cases which have gone to operation, but its usefulness has been demonstrated in a limited number.

C. H. HEACOCK, M.D.

Wishart, D. J. G.: Chronic Catarrh of the Nasopharynx. *Laryngoscope*, 1923, xxxiii, 267.

The author discusses the change that has occurred in the past forty years in opinions regarding the prevalence and importance of chronic catarrh of the nasopharynx. He gives a résumé of the views concerning its etiology which were held by MacKenzie in 1884, by Robinson, and by others.

In Robinson's opinion, a "catarrhal diathesis" is the determining factor in these cases. Niemeyer held that nasal catarrh is local in its nature and cause. MacKenzie thought that chronic irritation, as of dust, was the chief factor.

Wishart states, "We have in chronic post-nasal catarrh, as originally described, a disease which as a distinct entity has disappeared, not through a change in climate or diet, or hygienic surroundings, or the absence of dust, but because we classify our diseases more correctly, and more important still, because we appreciate better, and are more fully determined to secure, a maximum of normal nasal respiration for our patient. Snaring the posterior ends of the inferior turbinate and resecting the septum has done more than aught else to effect this change, because with free nasal breathing the membranes of the nasopharynx do not swell and secrete as where nasal obstruction exists, and in other cases our improved technique for posterior ethmoiditis and empyema of the sphenoidal sinus has prevented the onset of post-nasal catarrh.

"As we have learned to recognize that swelling of the lateral walls of the nasopharynx or a granular appearance of the posterior wall of the same region is occasionally due to causes located elsewhere, so we must recognize that hawking and droppings and a full sensation behind the nose are in like manner due to causes located elsewhere, and refrain from dignifying these as symptoms of a disease confined to the nasopharynx."

W. B. STARK, M.D.

MOUTH

Ramstedt, C.: The Operation for Complicated Harelip (Zur Operation der komplizierten Hasenscharte). *Zentralbl. f. Chir.*, 1922, xlix, 1556.

The separation of the lip and cheek parts from the jaw, with or without operative loosening of the intermaxillary bone, may cause a very serious loss of blood and lead to deglutition pneumonia. Therefore, for the last two years, Ramstedt has sought to force the projecting intermaxillary bone back by manipulation. He tried this first in a case of single harelip. The child's head being held by an assistant, the intermaxillary bone is grasped between the thumb and index finger, loosened, and forced back by pressure and shaking, the lip being protected from pressure by a pledget. This procedure, which requires at the most from one to two minutes, is repeated the next day until, after four to six sessions, the projection has become so loose that it can be held back without tension by the suture of the freshened margins of the cleft and no separation of these margins from the alveolar process is necessary.

In five cases good results were obtained. The same procedure has now been used with success by Ramstedt in two cases of double harelip. The nose seemed to be less misshapen than after von Bardeleben's open operation.

STETTINER (Z).

Luxenburger, A.: Plastic Surgery of the Jaw and Hard Palate (Beitraege zur Kiefer- und Gaumoplastik). *Deutsche Ztschr. f. Chir.*, 1922, clxxii, 384.

The author reviews briefly the various operations for the repair of defects of the jaw and reports 200 cases of free autoplasty, in three-fourths of which

satisfactory results were obtained. The cause of failure in the remainder was infection by bacteria latent in the scar tissue. The lesions were gunshot wounds. To obtain greater resistance, he embedded the transplant in a tissue known to be aseptic and having a rich vascular supply, the sternocleidomastoid muscle. At the end of eight to ten weeks he placed the transplant with the mobilized, attached piece of muscle into the defect in the lower jaw.

The fear that large pieces of bone in muscle may be mechanically burdensome is unfounded, even when they extend up over the clavicle. The displaced portion of muscle survived even when more than half was separated. Two fairly constant nutrient arteries enter the upper half of this muscle.

Of twenty-eight such transplants, twenty-five healed in readily. In two cases consolidation was not obtained because of the smallness of the transplant. One transplant was expelled because the separation from the muscle bed was too extensive. The technique is as follows:

Stage 1. The transplant with attached periosteum is taken from the tibia or the crest of the ilium. Holes are bored in the ends. A longitudinal incision is made in the anterior border of the sternomastoid muscle, beginning two fingerbreadths under the angle of the jaw and extending to the clavicle. Near the under-surface of the sternomastoid muscle a niche is made with the Kocher probe and into this the transplant is laid. The muscle is then sutured over the transplant with fine catgut.

Stage 2. This part of the operation is performed eight weeks after the first stage. If it were delayed much longer there would be shrinkage of the transplant from absorption. The previous incision is reopened and the muscle is mobilized by separation of the sternal and clavicular parts, partly by blunt dissection, partly with the knife, as far as the center or further, until the transplant can be brought into the defect without tension. The place from which the transplant was removed is closed, and the skin incision then lengthened, in the form of a curve or with an acute angle, as far as the defect. The fracture ends are exposed, a periosteal pocket is formed (Lexer), holes are bored, and the transplant is freed from adherent muscle fibers where it approaches the ends of the jaw. A strong catgut suture is passed through each of the holes, drawn taut, and tied, and the free ends are pushed into the periosteal pocket. In many cases the ends were held sufficiently firmly by the pocket without other fixation. The soft parts are sutured with catgut. A small rubber drain is then placed at a distance from the fracture site.

The disadvantages of this procedure include the complicated wound relations in the second stage, the necessity for narcosis in the second stage, and the great care necessary to prevent separation of the transplant from its nutrient pedicle. With regard to the advantages the author states that this indirect autoplasty gives much better prospects of an uncomplicated healing-in, the danger of infec-

tion is slight, even when the buccal cavity is opened, Lexer's method of preparing the field of operation by excising suspicious scars is unnecessary, the cosmetic result is good, there are no sharp projections, and, if desired, skin may be included in the transplant.

Rather long pieces of bone should be used, and the drill-holes must be sufficiently large. The mobilization on the under-surface of the sternocleidomastoid muscle must be performed with care on account of the proximity of important vessels. Submaxillary glands and lymph glands may be removed if they are in the way. The nutrient pedicle must not be compressed by fixation sutures. Fixation of the head toward the side operated on is seldom necessary. The fragments are immobilized by the Schroeder-Buegel method with a sliding splint. If there are few teeth, an interdental splint may be inserted and the jaws bound together.

In most of the author's cases the gunshot wounds were rather large. In nineteen, the defect was in the horizontal portion, in two in the angle, in two in the ascending ramus, and in five in the chin. Union was firm in from one and one-half to eight months. When there are latent foci of infection this method offers greater security than free autoplasty. It can be used also on the extremities in the treatment of pseudarthroses.

The author's procedure for the repair of large defects of the hard palate renders unnecessary the use of a rubber obturator. The technique is as follows:

First stage. A double skin flap is formed from the lateral cervical region beyond where the hair grows and a piece of skin and platysma muscle 12 cm. long and 5 cm. wide, extending from the region of the angle of the lower jaw to the clavicle. The base of this flap is above and somewhat broader than the apex. Under the clavicle a second piece of skin, 14 cm. by 5 cm., is taken. The connecting bridge of this flap also is above. The lower flap is pushed up under the upper one, and the wound surfaces are sutured together. The flap thus formed now hangs from the neck and rests on the shoulder like an epaulette. The wounds left by the removal of the tissue can be easily drawn together.

Second stage. In the course of eight days the lower connection is gradually divided and embedded in a horizontal incision made near the angle of the mouth.

Third stage. The angle of the mouth is slit or the cheek is opened close under the attachment of the flap, and the flap is turned in and sutured about half its circumference to the freshened opposite side of the palatal foramen.

Fourth stage. The connecting bridge in the mouth is excised as far as the outer side of the cheek and the transplant is stitched to the part of the palatal defect which lies opposite the cheek incision.

General anaesthesia is necessary in only the first stage. The others require only local anaesthesia. If the defect is very large, it is best to slit the angle of the mouth as otherwise exact suturing is difficult.

If a slit is made in the vestibulum oris between the lower jaw and the cheek (von Eiselsberg, Payr, Kappis), there is danger of injuring the facial nerve and causing disadvantageous tension on the flap. The tension is lessened by preliminary implantation near the angle of the mouth. To freshen the palatal defect, broad adhesion surfaces are made with knives having curved blades. Suturing is done with thin copper wire and silkworm gut with a Hegar needle holder.

The period between the first and second stages is sixteen days, and that between the second and third, from three to four weeks. During this time the flap is kept slightly compressed between two cardboard splints to prevent rolling up. Before the third stage a rubber prosthesis is worn to prevent the teeth from meeting. In the fourth stage wide excision of the pedicle of the flap is done to give sufficient depth to the conjunctival fold. A bone plate taken from the pelvis or the scapula and shaped like the palate may be placed in the double fold and allowed to heal in.

The author cured six cases by this method, five cases of war injury and one of luetic defect which had been operated on a number of times without success. Speech is good in spite of the absence of an arch, and the patients are able to eat even hard food with ease. Fluids do not escape into the nasal cavity or the antrum of Highmore. ZIPPER (Z).

Kuettner, H.: Carcinoma of the Tongue (Der Zungenkrebs). *Therap. d. Gegenw.*, 1922, lxiii, 444.

Cancer of the tongue occurs much more often in men than in women. In 266 primary cancers this relation was 81:19. As main causes are to be considered tobacco and syphilis and the combination of both. Leucoplakia precedes the condition in 22 per cent of the cases. Sharp-cornered teeth and ill-fitting plates, faulty oral hygiene, and the consumption of poor whiskey are also etiological factors.

Tongue cancer manifests itself only rarely before the forty-fifth year. Histologically it is almost always a pavement-epithelium cancer; cylinder-epithelium cancers are extremely rare. As a rule it attacks both edges and the base of the tongue. Surface carcinomata springing from the pavement epithelium of the mucous membrane and ulcerating early, spreading superficially and downward with wall-like raised edges are more numerous than deep tumors originating in the glands of the mucous membrane and without plain demarkation.

Tongue carcinoma grows through the tongue by continuity, attacks the floor of the mouth, the jaw, and the pharynx, and finally converts the mouth cavity into a fetid mass.

The early lymphatic metastases are due to the numerous lymph vessels in the tongue, the great number of lymphatic glands, and the muscles which massage the cancer particles into the lymph channels. Of importance is the fact that the lymph of either half of the tongue drains into the glands of both sides. Often in unilateral carcinoma metastases are

found in the lymphatic glands on both sides. The occurrence of metastasis in the inner organs is less frequent.

Among the early symptoms is violent pain; later, hæmorrhage is seldom absent. The early diagnosis of this destructive disease is very important. In every case of a suspicious nodule or ulceration on the tongue a test excision must decide. In the differential diagnosis ulcers caused by rough teeth must be borne in mind. Of the greatest importance is the decision as to when a leucoplakia degenerates into cancer.

In the differentiation of cancer from the sequelæ of syphilis it is to be remembered that gummatous foci are usually multiple while carcinoma is single, and that cancer usually develops on the edges of the tongue and in the pre-epiglottic region while gummata occur most frequently in the middle and on the tip of the tongue. Hæmorrhages and pain are rare in cases of gumma. Swelling of the glands suggests cancer. The tough, layered bottom of a gumma is easily removed without causing bleeding, while cancer is necrotic and soft and bleeds easily when removed.

The differentiation of cancer from tuberculosis, the very rare actinomycosis, and sarcoma is usually easy.

The prognosis without operation is very poor. Operation has good results if the diagnosis is made early, and even in advanced cases permanent cures have been obtained by thorough operation. The operation is always performed under local anæsthesia. It consists of two parts, the thorough removal of the cervical glands and the extirpation of the tumor. In early cases a one-stage operation is possible, but in others a two-stage procedure is necessary. The lymphatic glands of the region of the tongue are removed from a cross incision. The submental, submaxillary, and deep cervical glands on both sides are removed. The lingual artery on both sides must be ligated or, in advanced cases, the external carotid on one or both sides between the lingual and superior thyroid. When the tumor is favorably located it may be excised by cutting the cheek after the method of Jaeger. When the tumor occupies the base of the tongue and when the condition is advanced, the lower maxilla must be sawed through. If the floor of the mouth is also affected the median sawcut of the maxilla after Sédillot-Kocher should be considered. For tumors extending far to the rear, lateral sawing of the maxilla by Langenbeck's method as modified by von Bergmann is indicated. Since a primary communication between the large throat wound and the oral cavity must be prevented by all means, this part of the operation with the sawcut through the maxilla should be performed at a second stage a few days later. The patient may be allowed to get up the day after the operation.

The mortality has been considerably lowered through the use of local anæsthesia. In the author's clinic it is 8.3 per cent.

HAUMANN (Z).

THROAT

Borden, C. R. C.: A Clinical and Pathologic Study of Tonsils Subjected to the X-Ray. *Boston M. & S. J.*, 1923, clxxxviii, 493.

Williams, F. H.: Prompt Action of Radium Radiations in the Treatment of Small or Large Infected Tonsils and Lingual Tonsils. *Boston M. & S. J.*, 1923, clxxxviii, 497.

Borden made a study of the clinical and pathologic effects of the X-ray treatment of diseased tonsils with the co-operation of Butler, the roentgenologist. The technique of Witherbee was followed. Sixteen cases were radiated, and from all but two of these Borden resected the tonsils. With regard to the findings the following statements are made:

"During the times the radiations were being given, many of the tonsils seemed to be smaller and more normal in appearance, but when subsequently removed by dissection, no real change in size appeared to have taken place.

"After radiation many of the tonsils appeared to be normal in size and color, but at the time of operation a number of them were found to be filled with pus or cheesy débris.

"As a method of reducing bleeding and assisting dissection at the time of operation, radiation is useful.

"By diminishing over-secretion from the mucous surfaces of the throat, it decidedly decreased the possibility of postoperative pneumonia or lung abscess following throat operations.

"In cases wherein diseased tonsils may be justly suspected of producing secondary infections of the joints, heart, kidney, or other important organs, X-ray radiations are inadequate."

In contradistinction to this unfavorable report, Williams states that radium radiations produce prompt improvement in the general condition usually in one or two days. Some cases respond after four treatments given at intervals of about two weeks. Williams found also that lingual tonsils, adenoids, and lymphoid tissue on the pharynx respond to radium emanations. O. M. Rort, M.D.

Rehn, E.: The Treatment of Ludwig's Phlegmon by Excision of the Submaxillary Gland (Die Behandlung der Ludwigschen Phlegmone durch Extirpation der Glandula submaxillaris). *Klin. Wchnschr.*, 1922, i, 2138.

For the treatment of the deep submaxillary or Ludwig's phlegmon, Rehn advocates wide opening of the focus of infection by an incision from the outside. In three cases which ended fatally he found that in following the method of Jordan and Voelcker he did not do enough. In that method an incision is made one fingerbreadth below and parallel with the maxilla, and after division of the skin and the platysma muscle blunt instruments are used in proceeding downward into the infiltrated tissues on account of the proximity of numerous vessels, and the fibers of the mylohyoid muscle are severed with care.

Rehn believes that in all cases the posterior capsular space of the submaxillary gland, the floor of which is formed by the hyoglossus muscle, should be exposed as in ligating the lingual artery, and this gland should be removed with the adherent lymph glands. In a case of very severe infection this procedure gave a quick and complete cure. Rehn recommends it as meeting more fully the anatomical and pathologico-anatomical conditions than the methods heretofore employed. SIMON (Z).

Kutvirt, O.: Two Pharyngeal Tumors (Zwei Nasenrachenraumtumoren). *Časop. lékař. česk.*, 1922, lxi, 589.

These tumors occur only at the time of puberty, have the character of embryonic tissue, and are usually mixed tumors such as angiofibromata, myxofibromata, etc. Spontaneous involution of this kind of typical fibroma has been observed, this being due, perhaps, to obliteration of the greatly enlarged veins, and possibly also of the arteries, by the formation of hyaline thrombi which leads to necrosis of the tumor tissue. KINDL (Z).

NECK

Morgan, G.: Sinuses and Swellings in the Necks of Children. *Brit. M. J.*, 1923, i, 621.

The author has never seen actinomycosis of the neck in children. Syphilitic glands are fairly common and will disappear under anti-syphilis treatment.

Median sinuses in the neck of the child are caused by persistent thyroglossal ducts. Tuberculous glands or sinuses are not found in the midline. The median sinuses are never congenital. In dissecting out these ducts a preliminary injection with methylene blue is of great assistance.

Branchial cysts and fistulæ are more common on the left side. The author has never seen a complete fistula. A branchial cyst is more serious. A case is mentioned in which the cyst delivered itself intact after simple incision. There was no pedicle.

Cystic hygromata or atheromatous branchial cysts may be mistaken for ranula when in the sublingual region, but are much more serious and difficult to cure. They may become very large and cause death through pressure. In one case death resulted from obstruction of the trachea. As these cysts tend to disappear spontaneously, operation should be put off as long as possible.

Glandular fever with large swollen glands may clear up under expectant treatment.

Primary malignant growths in a child's neck have never been seen by the author. Secondary glandular involvement from sarcoma of the choroid spreading by way of the parotid is not uncommon.

An enlarged and cystic thyroid is more common in girls than in boys. Mention is made of the case in which rupture of a thyroid blood vessel caused sudden enlargement with dyspnoea from pressure on the trachea.

Adenitis is the most frequent cause of neck swellings in children, but is not so common as it was

thirty-seven years ago. In 80 per cent of the cases of tuberculous glands there is an inherited tendency.

Glands may be classified into: (1) those draining skin areas, and (2) those draining mucous membrane areas. The latter are those which become tuberculous, while the former become enlarged from pyogenic infection. The posterior auricular gland in a little girl became tuberculous from a scratch with a comb. This child had spent most of her time in a room where her brother was slowly dying of tuberculosis of the lung and intestines.

Tuberculous glands are more common on the right side. The submaxillary is the gland most commonly affected. Retropharyngeal and lateral pharyngeal abscess must not be overlooked. Loose teeth and infection about the teeth are a very fertile source of tuberculous infection. Of 3,000 children examined for swellings of the neck by Hallé, 78.8 per cent had poor teeth. Cook found that in most cases scrapings from the teeth or the pulp contained tubercle bacilli.

Glands are often infected with tubercle bacilli from the tonsils and adenoids which in turn often, if not always, derive their infection from the teeth. It is useless to remove them unless the infected teeth are also removed.

Children with a tuberculous diathesis should be given the best of hygienic care, kept away from cases of phthisis, and watched carefully after infectious diseases, especially measles and whooping cough. Local treatment of the gums and teeth and tonsils should be given and such tonics as are advisable. The local application of colloidal iodine is recommended. Glands which remain enlarged or show signs of softening should be removed.

MARCUS H. HOBART, M.D.

Marique, A.: Fifteen Cases of Thymectomy in Nurslings (La thyméctomie chez le nourrisson d'après quinze cas personnels). *Arch. franco-belges de chir.*, 1923, xxvi, 127.

The chief symptom of hypertrophy of the thymus is dyspnoea which is relieved by the sitting posture and increased by the recumbent position. Operation is indicated by attacks of suffocation. With chloroform anæsthesia Marique does an extracapsular thymectomy by the technique of Veau and Olivier. This operation is very simple and as soon as it is finished the child can be taken home. The suffocation is immediately and permanently relieved.

W. A. BRENNAN.

Jackson, A. S., and Jackson, R. H.: The Relation of the Basal Metabolic Rate to Diseases of the Thyroid Gland. *Am. J. Surg.*, 1923, xxxvii, 86.

The basal metabolic unit is the most valuable diagnostic aid which has come into use since the advent of the X-ray. The varying results reported with the many different types of apparatus have served to discredit this means of diagnosis, but in the hands of the authors the gasometer method of Tissot has proved most satisfactory and accurate.

In the clinical interpretation of results ± 10 per cent is considered normal, and little significance is attached to a rate of ± 15 percent. Although the rate may run as high as 140 per cent, it is rare for the reading to reach more than ± 100 per cent. The opposite condition is found in myxœdema, in which the basal metabolic rate may drop to -40 per cent or less.

In its relation to diseases of the thyroid gland the metabolic unit is valuable for its negative as well as well as its positive findings. The cases of young, neurotic girls with a rapid heart, palpitation, and tremor, who present symmetrical enlargement of the thyroid, with thrills and bruits, are often difficult to diagnose. The establishment of a normal rate in these cases at once eliminates the necessity for surgical interference.

In considering the patient's ability to withstand the shock of operation, the basal metabolic rate should be considered merely as one of several factors, including a history of impending crisis, the condition of the heart, the loss in strength and weight, etc.

Why some patients with exophthalmic goiter are able to carry a rate of over ± 100 per cent with greater ease than others are able to carry a rate of ± 60 per cent is not understood. Exophthalmic goiter progresses by a series of crises. If the patient lives through the second year with two or more crises, permanent myocardial and renal degeneration may result. The authors do not operate while the curve of hyperthyroidism is rising rapidly or when the patient is on the verge of a crisis. A lower reading may be observed in a patient approaching a crisis than in one who has recently passed through a crisis, but the operative risk in the latter case would be less. Rapid loss of weight, vomiting, diarrhœa, and anorexia warn of a crisis and should be given more consideration than a low basal metabolic rate.

The authors use the quadriceps test, in which the patient mounts a step without holding onto a support, to distinguish patients with true hyperthyroidism from those without it. The former falter and seek support in mounting the step, and in advanced cases are entirely unable to mount it.

In early exophthalmic goiter operation may be performed with fair risk when there is only moderate loss of weight and strength with a metabolic rate below ± 50 per cent, a regular pulse not over 140, and slight or no dilatation of the heart.

In adenoma with hyperthyroidism, symptoms of hyperthyroidism usually do not develop until from fifteen to twenty years after the appearance of the adenoma and persist for about three and one-half years before a surgeon is consulted. In these cases cardiac and renal damage are more serious than in exophthalmic goiter and the surgeon is more concerned with the ability of the heart and kidneys to functionate than with the possibility of postoperative hyperthyroidism. In this type of goiter the average metabolic rate is ± 35 per cent, whereas in exophthalmic goiter the average is over ± 50 per cent.

Thyroidectomy cures hyperthyroidism almost immediately.

In severe cases of exophthalmic goiter the patients are subjected to rest in bed and two ligations at an interval of a week or more. Within ten days the rate usually drops to ± 50 per cent. Two weeks after thyroidectomy the rate drops to ± 19 per cent, but in only about one-third of the cases does it return to normal in this time. Within another two weeks the majority of rates drop to normal.

Hotz, G.: Endemic Goiter and Cretinism, and Their Prophylaxis (Ueber endemische Struma, Kretinismus und ihre Prophylaxe). *Klin. Wchnschr.*, 1922, xlii, 2073.

The prevention of goiter by the administration of small doses of iodine, which is now being so much discussed, was tried some time ago but was abandoned because it was not known how to avoid the dangers of the treatment. Our present efforts in this direction rest wholly on our experience with regard to the effects of iodine rather than a better understanding of the nature of goiter. However, Hunziker's hypothesis attributing goiter chiefly to a deficiency of iodine in the food deserves consideration.

The author discusses the relationship between goiter and cretinism in detail. It is most commonly believed that the functional basis of cretinism is a hypothyreosis. The anatomical findings in the gland in adult cretins apparently support this view as they show atrophic, degenerated tissue in one form or another. In the author's opinion, this anatomical picture is a secondary phenomenon without significance with regard to the changes characteristic of cretinism, and the frequent occurrence, especially in young cretins, of large goiters presenting the histologic picture of stimulation-goiter with increased secretion justifies the conclusion that the increased secretion stands in causal relationship to the cretinism. Proof of this he sees in the splendid results of strumectomy on young cretins.

In the solving of these difficult problems the patient's age and the relationship between the thyroid gland and other endocrine glands must be borne in mind. Cretinism in the absence of goiter the author ascribes to the increased secretion of goiter in the parents, which is always to be found in such cases. Resection, dissection of the thyroid gland, and the administration of iodine are similar in effect. Why this is so has not yet been explained.

From the experiments in the administration of iodine as a preventive of goiter, begun three years ago, great improvement in the public health may be expected.

GERLACH (Z).

Troell, A.: The Structure of Goiter, with Particular Reference to Basedow's Disease (Ueber den Bau der Struma, mit besonderer Berücksichtigung des Morbus Basedowii). *Foerh. Svens. Læk.-Sællsk. Sammank.*, 1922, xlviii, 125.

This article is based on a study of sixty-two cases of operation for goiter, the case histories and microscopic findings of which are reported in detail.

The microscopic findings are shown in sixty-three unusually fine photomicrographs. It was determined that in 50 per cent of the cases there was undoubtedly an abnormality in the follicles and in the epithelium of the follicle (widening and recess formation in the follicle, cubical to cylindrical epithelium). These changes are similar to those in compensatory hypertrophy after removal of the greater portion of the thyroid gland and in spontaneous activity of the thyroid gland.

The secretion, which in half the cases can be traced to the epithelial cells, particularly in the pronounced cases of Basedow's disease, differs in staining qualities from the normal secretion. While the latter stains red with azocarmine Mallory, the contents of the follicle in the altered condition stain blue (microchemical transformation). Small-cell infiltration was found in 90 per cent of the cases of the diffuse toxic form of goiter, but it could not be determined whether this is an expression of intoxication or of infection.

The pathologic changes appear in such a large percentage of toxic goiters that they may be regarded as characteristic of Basedow's disease. In some cases, however, only one of the findings mentioned is noted.

PORT (Z).

Kessel, L., Lieb, C. C., Hyman, H. T., Lande, H.: Studies of Exophthalmic Goiter and the Involuntary Nervous System: A Study of Fifty Consecutive Cases of Exophthalmic Goiter. *Arch. Int. Med.*, 1923, xxxi, 433.

The authors give a detailed account of the course of fifty cases of fully developed exophthalmic goiter in which no specific treatment was instituted. The course of the symptoms and basal metabolism was closely followed and the results judged on the basis of restoration to social and economic usefulness and the return of the metabolism to within normal limits.

Forty-one of these patients have been socially and economically restored. Of these, twenty-seven were restored within four months, and four, or thirty-one all told, within six months of their hospital entry. In the large majority of cases economic restitution may be anticipated within six months, and in a fair majority, within four months. The authors emphasize that they refer to economic recovery. Symptomatic recovery is not complete. Palpitation and tachycardia on exertion and a certain degree of thyroid enlargement and exophthalmos do not completely and permanently disappear in any case. The patients are not cured, but their disease is in a stage of arrest.

The restoration of forty-four of fifty patients to economic recovery in such a short time is sufficient to emphasize pointedly the tendency of this disease to spontaneous arrest in the vast majority of instances.

ARTHUR L. SHREFFLER, M.D.

Urban, K.: Twenty-Two Years of Goiter Surgery (Zweiundzwanzig Jahre Kropfchirurgie). *Zentralbl. f. Chir.*, 1923, i, 86.

The author reports his experience in the treatment of 2,500 cases of goiter during a period of twenty-two years. In every case morphine was given and the operation was performed under local anæsthesia induced with 0.5 per cent novocaine. In cases of large goiters from 0.75 to 1.0 gm. of novocaine was used. Kocher's collar incision was made. In 100 cases of substernal goiter the author succeeded in removing the goiter without resecting the sternum. In one case of calcified struma, however, such resection was necessary. He always performed a unilateral capsular resection, leaving behind a remnant the size of a plum to protect the recurrent laryngeal nerve and the parathyroids. The trachea was suspended by suturing the stump to the sternohyoid and thyrohyoid muscles, and a rubber drain was inserted for twenty-four hours.

In cases of exophthalmic goiter a unilateral resection was done with ligation of the superior thyroid artery on the other side close to its entrance into the gland. In five cases resection of the thymus was done in addition. Silk was used for the sutures. In cases of very extensive resection (four-fifths) and when hypothyroidism was suspected, thyroid tissue from a young person was implanted under the breast and thyroid tablets were given. Myxœdema never occurred.

In order to spare the parathyroid artery the thyroid artery was never ligated on the trunk, but always in the plane of the incision. In none of the cases in which this method was used and a vegetable diet was given for the first eight days were there any signs of tetany. In 14 per cent there were laryngeal symptoms. In 10 per cent these were due to paralysis of the recurrent laryngeal nerve and in 4 per cent to œdema and hæmorrhages. In about 3 per cent of the cases there was hoarseness. Even bilateral posticus paralysis may disappear entirely. After the operation the temperature often reached 39 degrees C. There were twenty deaths, a mortality of 0.8 per cent. Eighty per cent of the patients were cured. A recurrence developed in 1 per cent. In cases of struma maligna, in spite of radical procedures, the results were poor. VORSCHUETZ (Z).

SURGERY OF THE NERVOUS SYSTEM

BRAIN AND ITS COVERINGS; CRANIAL NERVES

Steiger, M.: Can True Epilepsy Be Cured or Benefited by Roentgen Treatment? (Kann die genuine Epilepsie durch Roentgenbestrahlung einer Heilung bzw. einer Besserung entgegengeführt werden?) *Schweiz. med. Wchnschr.*, 1922, lii, 1141.

The author treated fifteen cases of true epilepsy by total irradiation of the brain. In some of them striking improvement as regards the frequency and the severity of the attacks was noted. However, the number of cases is too small and the duration of the treatment too short to warrant a final opinion.

WEHMER (Z).

Drevermann, P.: The Repair of Defects in the Dura and Skull; with Particular Attention to the Permanent Results in the Prevention and Cure of Traumatic Epilepsy by Repair of the Dura by Free Transplantation of Fatty Tissue (Ueber den Ersatz von Dura- und Schaedeldefekten, unter besonderer Beruecksichtigung der Dauererfolge in der Verhuetung und Heilung der traumatischen Epilepsie durch Duraersatz mit frei transplantiertem Fettgewebe). *Beitr. z. klin. Chir.*, 1922, cxxvii, 674.

There is an element of uncertainty in every method of treating epilepsy because the pathologico-anatomical conditions determining the disease are as yet unexplained. On the one hand we are urged to open the skull in the manner of a valve, and on the other to correct defects by plastic procedures.

Observations over a long period of time are necessary to determine whether or not plastic repair of a defect in the skull contributes to the cure of epilepsy. The author therefore reports cases which have been under observation for from three to ten years after operation. The repair of a skull defect is necessary because epileptic attacks may be induced by variations in pressure in the open skull. Tension on a rigid scar has a similar effect. Spontaneous bony filling out of skull defects is very rare.

For covering bony defects, free bone transplantation was used almost exclusively in Lexer's clinic. Larger defects were repaired with bone taken from the tibia, and the others by plates of bone with periosteum attached taken from the external table or the vicinity of the defect. Subsequent roentgen examinations revealed that in the case of defects covered with bone from the external table the loss of bone by absorption was frequently greater than the new bone formation. Years afterward demonstrable defects remained between the pieces of external table where bony union had not taken place.

The author emphasizes that the transplantation should not be undertaken until hæmorrhage has

been completely arrested. The transplant should be as thick as possible and should fit into the defect exactly. If sufficient periosteum has remained over the defect, the transplant should be placed with its periosteal side next to the brain so that it will be covered by periosteum on both sides. If the periosteum over the skull defect has been lost, the transplant should be placed with the bony wound surface next to the brain. In order to obtain the desired curvature it is often necessary to saw the transplant across in a number of places, cutting through as far as the periosteum.

The scar in the brain is usually excised as completely as possible, but when the scar is very deep the scarred dura is merely separated from the lamina vitrea. The defect in the dura must be filled out in such manner that cicatricial adhesions between the surface of the brain and the dural transplant will not form again, and the closure of the defect must be sufficiently resistant to withstand the intracerebral pressure.

Freely transplanted fat is employed as the most suitable material for repairing defects in the dura. The inclusion of fascia in the transplant does not appear to be essential. At operation the bony defect is usually enlarged to an extent which exposes the margins of the dural defect for about 0.5 cm., the scarred dura then being separated from the margins of the bony defect. The thickness of the flap of fatty tissue to be transplanted is reckoned from the size of the defect caused by the sinking-in of the brain. Recently the plastic operation has been carried out in two stages in all cases.

The repair of the dura is best done six months after the wound has healed. It must not be delayed until the picture of changes in the brain causing epilepsy has become established. Foreign bodies found in the scar must first be removed, the plastic operation being postponed. The second stage, the repair of the bony defect, should be performed three months after the repair of the dura.

Subsequent examinations of cases showed that the prospect of cure or improvement is not particularly good if epilepsy is already present; there were only five cures in thirteen such cases. On the other hand, there is a good prospect of preventing the development of traumatic epilepsy by plastic repair of the skull undertaken at the proper time.

SCHUBERT (Z).

Rivarola, R. A.: Hydatid Cysts of the Brain in Children (Los quistes hidatídicos del cerebro en los niños). *Semana méd.*, 1923, xxx, 157.

In the Children's Hospital at Buenos Aires, Rivarola has observed twenty-two cases of hydatid cysts with the following localizations: frontal, 3; fronto-

parietal, 1; temperoparietal, 3; occipitoparietal, 3; occipital, 4; parietal, 8.

In the diagnosis, roentgenography of the cranial vault, examinations of cerebrospinal fluid and blood, and laboratory reactions are of no value. The Polak-Neisser trephine puncture and pneumo-ventriculography are not practised in the Children's Hospital; other methods have always sufficed for an exact diagnosis.

In the absence of any known specific treatment of hydatid cysts surgical operation has been adopted as the only efficacious method in these cases. The operation is performed as early as possible. In the evacuation of the cysts great care is taken to prevent contamination of the surrounding tissues.

Of the twenty-two cases reviewed twenty-one were operated upon. Eight (38.09 per cent) patients recovered definitely and thirteen (61.9 per cent) died. Of the latter, five died of recurrence from five months to one and one-half years after the operation. Only in one of these cases was the cyst suppurative.

W. A. BRENNAN.

Poetzl, O.: Localized Symptoms from a Lesion of the Left Parietal Lobe: Observations in a Case of Brain Tumor Treated by Palliative Decompression (Ueber die Herderscheinungen bei Laesion des linken unteren Scheitellappens; Erfahrungen an einem palliativ treponierten Hirntumor). *Med. Klin.*, 1923, xix, 7.

For three months, the patient, a woman of 22 years, had had a severe headache associated with progressive loss of vision leading to almost total blindness. As she fell forward when her eyes were closed and as there was pain in the left ear, a tumor of the left subangular region was suspected and a decompression over the posterior part of the left parietal bone was performed. As soon as the dura was opened the brain protruded.

Following the operation there was rapid improvement of vision but on account of the progressive prolapsus the syndrome of destruction of the center in the left gyrus angularis of the right handed developed. Lumbar puncture did not influence this syndrome, which was caused perhaps by a hæmorrhage during the operation, but the symptoms decreased when the prolapsus ruptured and discharged cerebrospinal fluid in considerable quantity.

From a critical analysis of the symptoms the author comes to the conclusion that the specific action of the gyrus angularis is the transformation of external movements and directions of vision into internal visual movements and directions, this explaining, among other things, the rhythm of motion in writing.

STRAUSS (Z).

Rosenbluth, B.: A Case of Tumor of the Cerebellum That Gave Negative Results to Tests of the Labyrinth and Labyrinthine Tract. *Laryngoscope*, 1923, xxxiii, 257.

Rosenbluth reports the case of a 10-year-old boy suffering from severe headache, vomiting, and un-

steady gait. When standing, he had a tendency to fall backward and to the right. The left eye showed internal strabismus. Later the patient became drowsy, and there was severe pain with slight tenderness in the right frontal and parietal regions. He made loud and frequent outcries. The pulse became slow and vomiting increased.

The pupils were normal. There was no nystagmus. The eye grounds were normal. The reflexes were normal with the exception of a slightly increased knee jerk on the left side. The laboratory findings and roentgenograms of the skull were negative. The white blood cells numbered 12,400. The cerebrospinal fluid was clear but heavy with albumin. A healed perforation of the membrana tympani on each side was found. Turning tests and caloric tests showed reacting labyrinths and labyrinthine tracts. The hearing was good in both ears.

The condition was diagnosed as due to a neoplasm situated in the upper worm of the cerebellum and invading the superior medullary velum.

Postmortem examination of the brain confirmed the clinical diagnosis. Pathologists reported the neoplasm to be a large spindle-cell sarcoma.

W. B. STARK, M.D.

Biedl, A.: The Physiology and Pathology of the Pituitary Body (Physiologie und Pathologie der Hypophyse). Munich: Bergmann, 1922.

At the Twenty-fourth Congress for Internal Medicine in Wiesbaden, on April 26, 1922, a very complete review of the present status of the anatomy and the normal and pathological physiology of the pituitary body was given. The most important points brought out in this work are as follows:

Anatomically, the pituitary body consists of four parts: (1) the anterior lobe (pars distalis, prehypophysis), (2) the pars intermedia (pars juxta-neuralis), (3) the pars infundibularis (neurohypophysis), and (4) the pars tuberalis. The last adjoins the eminentia sacularis of the tuber cinereum. Parts 2 and 4 are developed from the ectoderm of the embryonic buccal cavity, and the prehypophysis is derived from the entoderm of the foregut.

Biedl regards the chief cells in the anterior lobe as mother cells of the eosinophile and basophile granular cells, but believes that all three varieties are differentiated cell forms with a particular function. The lipid secretion of the chief cells, as well as the granula, is given off into the blood vessels, and only exceptionally stored up in the follicles. The middle lobe forms a colloid secretion which is first given off into the acid of the follicles and from there is poured into the clefts of the tissue of the middle lobe and further into the clefts in the connective and supporting tissue of the neurohypophysis and the hypophyseal pedicle.

The secretion of the anterior lobe, a lipid substance isolated as tethelin, is pharmacodynamically ineffective. The well-known effect of pituitrin and similar substances upon the blood pressure, respiration, smooth muscle, and concentration of urine is

due to one or more intermediate substances which probably undergo definite changes (activation) on their way through the neurohypophysis.

Regarding the functions of the pituitary body as shown by clinical and experimental observation, Biedl makes the following statements:

1. The pituitary apparatus is a system of organs important to life. The separate parts perform different functions in the economy of the body, and the co-operation of all of them is necessary for the maintenance of life.

2. The anterior lobe is a true gland of growth, the internal secretion of which determines the growth and therewith the dimensions and habitus of the body partly directly, partly through influence upon the generative glands. Undersecretion leads to dwarfism and premature senility, and oversecretion to giant growth and acromegaly.

3. The middle lobe is a metabolic gland, the internal secretion of which influences general metabolism, the individual components of metabolism, the regulation of body heat, and the activity of the sympathetic system. Probably this secretion has an indirect influence on the metabolic center situated in the subthalamus region by way of the neurohypophysis and the hypophyseal pedicle.

4. The pars tuberalis may function with the pars intermedia, but this has not been proved.

5. The posterior lobe is not a secreting organ. Dystrophia adiposogenitalis can arise from injury to the middle lobe of the pituitary or to the mid-brain. In most cases an injury of both is found. The same is true of diabetes insipidus. The regulating central organ of the hypothalamus functions independently, and its activity is determined by nerve and blood stimuli. Important blood stimuli are the hormones of the neighboring pituitary body, with which it is connected by lymph passages.

6. It is not known whether there is any significance in the close proximity of the gland of growth and the gland of metabolism.

7. There is reciprocal action between both glands of the pituitary body and other endocrin glands.

NAEGELSACH (Z).

SPINAL CORD AND ITS COVERINGS

Sgalitzer and St. Jatrov: The Roentgen Findings in Tumors of the Spinal Cord (Roentgenbefunde bei Tumoren des Rueckenmarks). *Mitt. a. d. Grenzgeb. d. Med. u. Chir.*, 1922, xxxv, 598.

The authors discuss only tumors which arise from the spinal cord or its membranes and do not attack the bone. Fifteen such tumors were examined. Ten of them were extramedullary and five were intramedullary. Exostoses were present in nine of the ten cases of extramedullary tumors, but in only one of the five cases of intramedullary growths. The latter was a large tumor that had grown through the entire cervical marrow. The exostoses were found five times at the level of the tumor, and four times somewhat further down.

In cases of ventrally located tumors they were always at the tumor level, but in those of dorsal or more dorso-lateral tumors they were sometimes somewhat lower. In four cases of intramedullary tumors and in cases of open meningitis serosa no exostosis could be found. Therefore the finding of an exostosis which is confined to a small part of the spinal column may be of diagnostic significance, indicating a tumor of the spinal marrow. Laminectomy should be performed at the level of the exostosis unless the neurologist is sure of the location of the tumor. If the tumor is not found at the level of the exostosis, a search should be made for it further up.

In conclusion the authors state that little is known regarding the cause of the exostoses. In this connection they cite the fact that Schlesinger and Schiller have found circumscribed exostoses in the neighborhood of endocranial brain tumors.

HAGMANN (Z).

PERIPHERAL NERVES

Stradyn, P. J.: The Treatment of Injuries of the Peripheral Nerves (Behandlung der Verletzungen peripherer Nerven). *Verhandl. d. Russ. Chir., Pirogoff-Ges.*, Petrograd, 1922.

To determine the relative merits of surgical and conservative methods the author has chosen from his 817 cases (123 of which were operated upon) only those in which the treatment was carried out systematically for a period of at least three months. Purely conservative procedures in 156 cases resulted in improvement in 45 per cent, while operative intervention in 102 cases caused improvement in 63 per cent, with restoration of active motion in 27.5 per cent. The inadequate period of observation (for a valid opinion a period of two or three years is desirable) was reflected more clearly in the statistics of single operative procedures. Neurolysis was successful in 76 per cent of fifty-five cases, and nerve suture was successful in 40 per cent of thirty-five cases. Favorable results followed six plastic nerve operations only to the extent that in two cases trophic ulcers healed.

From the world literature of war injuries the author cites the results in 3,128 cases. Success followed neurolysis in 69.5 per cent and suture of the nerves in 54 per cent.

Physical and mechanical therapeutics must precede and follow operation. The results of operative intervention undertaken from three to four months after the nerve injury have been no worse than those of operations performed in the first few weeks.

Leriche's operation has proved its value clinically; median necrosis is not to be feared, for according to the investigations made by Petroff with vital stains in the laboratory of Anitschkoff, the nutrition of the median nerve occurs from the lumen of the blood vessels outward.

VON DER OSTEN-SACKEN (Z).

Chessin, W. R.: *The Operative Technique in Injuries of Peripheral Nerves* (Zur operativen Technik bei Verletzungen peripherer Nerven). *Nowy Chir. Arch.*, 1922, II, 332.

The author reports upon thirty-four cases in which an operation was performed for injuries of the peripheral nerves. In sixteen, the sciatic nerve was involved, in five the median nerve, in three the ulnar nerve, in six the radial nerve, and in two the brachial plexus. The sciatic nerve was exposed by the Barontsch-Wenglowski incision.

Stoffel's contention that the nerve tracts to the individual muscles are distinctly isolated from one another in the nerve is not entirely correct. The investigations of Borchardt and Wjasmenski demonstrated that there are numerous anastomoses, the peripheral nerve therefore constituting a plexus. In suturing, accurate coaptation of the nerve ends is important. The nerve ends may be made the same width by Hofmeister's method of injecting fluid into the smaller end. The reinforcement of the suture with a tube and a strip of fascia should be abandoned. The suture itself should be made in the simplest manner. The placing of the suture line between muscles is of advantage. The neurolysis and the endoneurolysis must be carried out with great care. SCHAACK (Z).

Nasarow, W. M.: *Regeneration of Nerves in Cicatricial Tissue* (Ueber Regeneration des Endnervensystems im Narbengewebe). *Verhandl. d. XV. russ. chirurg. Kongr.*, Petrograd, 1922.

Human scars were examined after from twelve days to one year. Staining was done by the Ehrlich-Dogiel and Golgi methods.

In the twelve-day scar regenerative processes were noted, but as the small nerve trunks had not yet penetrated into the epithelium, no pain was caused by pin pricks. In addition to regenerative processes degeneration was observed; at the scar boundary the nerve endings did not take the stain.

In the six-week scars the nerve terminations had grown into the epithelium and sensation was present in the scar.

In scars two months old growth-buds were still found in the epithelium, but after six months these were absent.

In a scar four months old with an unhealed granulating wound (amputation stump) the process of scar innervation could be seen plainly, the nerve fibers which form the trunks being clearly visible in the newly formed connective tissue. From these trunks fibers branched off which formed a subepithelial plexus sending out terminal branches which formed non-encapsulated nerve endings.

In one-year-old scars of the tip of the finger peculiar nerve endings were observed which in shape resembled the Golgi-Mazzoni corpora.

The author comes to the conclusion that the regeneration of nerves is subject to special laws, and that the final objective of the nerve fibers is the epithelium. The growth of the nerve fibers is in-

dependent of the direction of the fibers of the connective tissue and the vessels.

The wound is epithelialized first and penetrated by the nerve fibers later. Consequently full regeneration with restitution of the nerve elements does not take place in man before one or two months or longer. The depth and extent of the wound to be scarred over are factors of influence. SCHAACK (Z).

Rosentul, M. A.: *The Etiology of Neurofibromatosis* (Zur Aetiologie der Neurofibromatose). *As-trachanski Med. Westnik.*, 1922, I, 144.

The author gives a detailed description of the clinical picture and the histologic findings in the case of a 20-year-old woman with neurofibromatosis of the trunk, the flexor surfaces of the extremities, and the palms of the hands. The lesions included telangiectatic spots, freckles, simple warts, vitiligo, naevi plani, and fibromata mollusca and cavernosa of the most varied dimensions, up to the flap-shaped structures first described by Bruns as "elephantiasis neuromatodes." The latter, larger than apples, covered the right arm, the original site of the disease, where a pigmented spot was present when the patient was born. When she was 10 years of age this spot began to grow like a tumor. At the age of 19 years, when there was cessation of menstruation, the distribution was general.

The patient was mentally dull. There was no pain. The uterus was infantile. The thyroid gland was enlarged. The adrenalin content of the urine was markedly diminished, but that of the blood was normal. The leucocytes were increased and showed 70 per cent mononuclears. In the distal third of the right humerus there was pronounced bone atrophy (neurotrophic?); in the proximal part and in the forearm it was just beginning.

As the result of organotherapy the general condition improved, the weight increased, and some of the telangiectatic fibromata disappeared.

In the author's opinion neurofibromatosis is due to a congenital pluriglandular anomaly or dysfunction. The tumors arise in the perineural connective tissue, as Recklinghausen has already shown. The large number of Ehrlich's mast cells confirms the assumption that a young granulation tissue is a factor. The part played by the nervous elements is passive. The growth is produced mainly by the neoplastic formation of blood vessels of the most varied sizes. Old mature tumors show dilated lymph vessels, some of which form hollow spaces.

VON DER OSTEN-SACKEN (Z).

Molotkoff, A. G.: *The Pathogenesis of Trophoneurotic Skin and Bone Changes and a New Attempt at Their Surgical Treatment* (Die Pathogenese trophoneurotischer Haut-Knochenveraenderungen und ein neuer Versuch ihrer chirurgischen Behandlung). *Verhandl. d. Russ. Chir. Pirogoff-Ges.*, Petrograd, 1922.

The origin of trophoneurotic lesions is a problem which has not been solved. The operative results

are not encouraging. Complete and permanent healing has been obtained only in superficial injuries of peripheral nerve trunks.

The author is familiar with the hypothesis which maintains the existence of a special trophic nerve apparatus and special paths. This was first advanced by Duplay and Morat in 1873 and recently revived by Pawloff, the physiologist. The following clinical data are adduced in its support:

1. The absence of any dermal or skeletal trophic changes after complete, uncomplicated severance of a nerve trunk.

2. The constantly observed grave trophic disturbances associated with nerve lesions characterized by severe pain. This is best explained on the basis of a parallelism of the trophic and sensory nerve paths.

3. The obstinate tendency toward delayed consolidation or the formation of a pseudarthrosis in certain arm fractures in which the radial nerve is involved. Anatomical study of such cases led the author to conclude that the cause is an injury to a branch of the radial nerve entering the foramen nutritium. A fracture of the humerus which failed to unite two years after an accurate bone suture (neurotrophic osteoporosis developing in the fragments) promptly united in six weeks after an analogous operation in which the degenerated radial nerve fibers were resected and a neurorrhaphy was performed.

Further clinical proof was furnished by seven surgically treated cases of chronic skin ulceration and bone suppuration, four due to tendon injuries and the rest to other traumata, freezing, or infection. The site of injury was the cauda equina in two, the brachial plexus in one, and the tibial nerve in the popliteal fossa in one. Under aseptic conditions the nerve fibers were severed with a sharp scalpel proximal to the site of the lesion and the neuritis and with regard to the posterior nerve roots and the segmental projection of a given innervation area. Ulcerations which had resisted all local therapy for from eight months to four years then healed in from twelve to fifteen days. In one case of trophic ulcer of the heel of one and one-half years' duration, which followed a simultaneous injury of the popliteal nerve and the femoral artery in Hunter's canal, a most radical Leriche sympathectomy had been carried out, the artery being resected for 12 cm. Healing took place, however, only after neurotomy of the tibial branches of the sciatic nerve 7 cm. above the site of the injury. Sixty-five days later, in keeping with the usual rate of regeneration of about 1 mm. in twenty-four hours, continuity was re-established and the symptoms recurred. The ulcer healed again when the altered nerve endings were resected.

The dystrophic process is of neuritic origin. The distribution of a pathologic irritation occurs in a centripetal direction. The point of origin is usually distal to the posterior roots.

The result of treatment, its degree, and its duration depend upon the distance of the operative pro-

cedure from the centripetal neuritic process. A fact of importance in this connection is that the severance of the nerves distal to the site of the injury had no effect upon the trophic ulcer of the foot, while the same procedure proximal to the injury resulted in rapid healing.

The stages of healing of ulcer are characteristic. As early as the second day after operation a quantity of "laudable" pus (pus bonum) is exuded instead of the previous sanguiniferous secretion. New granulations are then formed, the callous borders desquamate, and epithelium spreads remarkably quickly, soon leading to epithelization and scar formation.

In a case of ulcers of both feet, neurotomy of the most severely affected extremity was followed by healing in the foot not operated upon as well as in the foot treated. This suggested the presence of intracental trophic anastomoses.

Besides the primary trophic neurotic lesions, reactive processes, such as hypertrophy of the skin or nails, are frequently found in the neighborhood of the disease focus. These are not the result of a disturbance of nutrition, but due rather to positive nerve irritation. Both the trophic depressions and the accelerations occur in the paths of the spinal nerves. The sympathetic system may be irritated also reflexly, this leading to various vasomotor changes which must be differentiated from purely trophic changes.

VON DER OSTEN-SACKEN (Z.)

SYMPATHETIC NERVES

Kappis, M.: The Etiology and Treatment of Perforating Ulcer of the Foot, with Remarks on Sympathectomy (Ueber Ursache und Behandlung des Malum perforans, mit Bemerkungen zur Frage der Sympathektomie). *Klin. Wchnschr.*, 1922, i, 2558.

Perforating ulcer of the foot is generally looked upon as a trophic ulcer. Its exact cause is still unknown in spite of many hypotheses. According to the most recent theory, that of Leriche and Bruening, a pathologic irritation from the site of nerve injury, particularly a neuroma, is transmitted to the spinal ganglion and the spinal cord where it releases a reflex and this reflex in part returns by way of the peri-arterial sympathetic tracts to the periphery, where it causes dilatation of the capillaries.

According to the view of the author, a perforating ulcer of the foot is a decubitus developing in an anæsthetic or hypæsthetic area of tissue in which there are trophic disturbances. In the majority of cases the reason for the failure of such ulcers to heal must be sought in a fistula of the joint. As this fistula can heal only when the affected joint is extirpated, the operation of choice is resection of the joint.

The author's observations are based on thirty-one cases of perforating ulcer of the foot, including thirteen cases of injuries of peripheral nerves, four

cases of syringomyelia, five cases of tabes, three cases of syphilis, one case of spina bifida, one case of pes cavus (plus spina bifida occulta?), and four cases of indefinite diseases of the spinal cord.

Ulcers of the heel appearing after injuries of the nerves are difficult to influence. The most important part of the treatment is restoration of the nerve conduction. In seven of nine cases of ulcer of the ball of the foot, the heads of the first and the fifth metatarsal bones were resected, whereupon the ulcer healed without a reaction. A new ulcer appeared over the head of the fourth metatarsal bone in four cases but, like the others, healed smoothly after resection.

Of the sixteen patients with diseases of the spinal cord, nine were treated by resection or disarticulation of the toes. Healing resulted in every case. Particularly good results were obtained by resections in which the ulcer itself was not disturbed. An amputation or disarticulation comes up for consideration only in cases of extensive destruction.

The subcutaneous displacement of the sensory nerves of the skin advised by Nordmann seems to be worthy of recommendation.

Flap plastics have not been successful up to the present time, and not much is to be expected from X-ray treatment. The author reports three cases which disprove the neuroma theory of Leriche and Bruening:

Case 1. The patient sustained a gunshot wound of the sciatic nerve in 1915. In 1917, a perforating ulcer developed on the ball of the little toe. In April, 1918, a resection of the joint was followed by rapid healing. In May, 1918, a neuroma was removed and the nerve sutured. Six months later a new ulcer appeared over the ball of the fourth toe, but after the expulsion of a sequestrum, healed spontaneously.

Case 2. The patient sustained a gunshot wound of the sciatic nerve in July, 1918. Nerve suture was done in August, 1918. Subsequently an ulcer as large as the palm of the hand appeared on the heel, but gradually healed.

Case 3. In 1919, division of the tibial nerve was followed by an ulcer of the heel. In 1920, the neuroma was removed and the nerve was sutured. The ulcer did not heal, but it cannot be denied that a neuroma favors the development of a perforating ulcer.

The author treated four cases of perforating ulcer by peri-arterial sympathectomy of the femoral artery. In two, a good result was obtained. In a case of glaucoma, a sympathectomy performed on the common carotid artery was successful.

WOHLGEMUTH (Z).

Schamoff, W. N.: Peri-Arterial Sympathectomy in Spontaneous Gangrene (Zur Frage der periarteriellen Sympathektomie bei Spontangangraen). *Westnik Chir. i pogran. oblasti*, 1922, i, 183.

In spontaneous gangrene two operations are recommended to improve the blood supply of the

diseased limb: (1) arteriovenous anastomosis by Wieting's technique and (2) ligation of the vein by Oppel's method. The author has performed Leriche's excision of the peri-arterial sympathetic plexus in fifteen cases of spontaneous gangrene. This operation results in enlargement of the vessel, improvement in the blood supply, and an increase in the blood pressure which in a number of cases led to cicatrization of the necrosed part.

Schamoff reports the case of a man 30 years of age who had gangrene of the toes of both feet. Pulsation was absent in both popliteal arteries. The blood pressure was 20 mm. on the left side and 40 mm. on the right. The gangrenous ulcerations were more extensive on the left foot. Peri-arterial sympathectomy was performed on the left leg, and, for purposes of comparison, ligation of the popliteal vein by Oppel's method on the right. In the left leg healing of the ulcerations occurred in sixteen days, but the right leg showed no change. The patient is now able to walk on the left leg without discomfort.

In the discussion of this paper Oppel stated that he severs the sciatic nerve because this nerve contains most of the sympathetic fibers.

Lissizyn stated that in estimating the value of Leriche's operation it must be borne in mind that in the removal of the arterial adventitia the circuit through collateral sympathetic fibers is permanently interrupted.

Hesse reported that he has had only temporary success with section of the sciatic nerve in cases of neuropathic ulceration.

According to Krawkoff, section of the sciatic nerve may cause a vasodilation of only short duration.

SCHAAACK (Z).

MISCELLANEOUS

Keegan, J. J., and Riddell, T. E.: Lumbar Spinal Puncture and Cisternal Puncture. *Nebraska State M. J.*, 1923, viii, 129.

The technique of cisternal puncture is not difficult and has advantages over spinal puncture especially in dispensary work.

An 18-gauge lumbar puncture needle is inserted in the neck, directly over the prominent spine of the second cervical vertebra, directed upward in the midline toward the level of the external auditory meatus, and into the dense occipito-atlantal ligament between the occipital bone and the first cervical vertebra. It then enters the subarachnoid fluid space in the angle between the cerebellum and the medulla—the cisterna magna. The distance from the skin to this fluid space varies from 3 to 6 cm. Small file marks on the needle serve as a guide, and a guard prevents plunging beyond a reasonable and safe depth.

Two hundred cisternal punctures were done by the authors without serious consequences and with complete freedom from severe headaches. The patients arose immediately after the puncture and

returned to their usual activity. The most common complaint was moderate soreness or stiffness at the site of the puncture.

Cisternal puncture is indicated especially in spinal subarachnoidal block due to inflammatory exudate.

H. W. FINK, M.D.

Ingvar, S.: On the Danger of Leakage of the Cerebrospinal Fluid After Lumbar Puncture. *Acta med. Scand.*, 1923, lviii, 67.

The author reports three deaths following spinal puncture, two of which presented intracranial tumors, and the third a chronic internal hydrocephalus. A critical review of the literature is given with a discussion of the various theories advanced to account for the distressing symptoms (chiefly headache) which may follow this operation.

Largely from a theoretical point of view and a consideration of the physiological data bearing on the origin of the spinal fluid and its pressure with relation to that in the epidural venous plexus, it is concluded that headache results from leakage of the spinal fluid through the dural wound into the epidural space. This leakage is favored by the erect position and muscular effort. In cases of tumor of the brain it may permit the bulb and posterior cerebellar area to plug down into the foramen mag-

num, and when this occurs, the outlets of the fourth ventricle may become closed and an internal hydrocephalus may form, which will further increase the pressure on the bulb.

From these considerations the author recommends that spinal puncture be done in the recumbent position, with as small a needle as is practicable, and the patient kept in bed at least forty-eight hours afterward. If the symptoms indicate plugging of the bulb into the foramen magnum with a secondary internal hydrocephalus, intravenous or intra-intestinal injections of hypertonic salt solution may be given for resorption of the ventricular fluid.

P. R. BILLINGSLEY, M.D.

Jacobaeus, H. C., and Frumerie, K.: Leakage of Spinal Fluid After Lumbar Puncture and Its Treatment. *Acta med. Scand.*, 1923, lviii, 102.

The authors report two cases of diagnostic spinal puncture in which this procedure was followed by severe headache. The treatment consisted of the intraspinal injection of normal saline solution until the manometer showed the pressure to be normal, and subsequent elevation of the foot of the bed. Relief of the symptoms followed in a few hours.

P. R. BILLINGSLEY, M.D.

SURGERY OF THE CHEST

CHEST WALL AND BREAST

Berry, J. A.: Suppurative Arthritis Simulating Acute Appendicitis. *Lancet*, 1923, cciv, 486.

The author reports a case of suppurative arthritis of the eleventh costovertebral articulation on the right side.

The patient, a girl of 9 years, gave a history of bronchitis, measles, whooping-cough, and scarlet fever. Since the age of 7 years she had had numerous whitlows and a large abscess in the right groin.

After a fall on February 27, 1921, she complained of pain in the right hip, but the next day this disappeared. On March 1 she returned from school because of a "shivering attack." On March 2 she had pain in the abdomen and her temperature was 101 degrees F.

Physical examination revealed tenderness in the right loin and over the right ilium. The temperature rose to 103 degrees F. and complaint was made of tenderness over the right iliac fossa and the lower ribs on the right side.

The entire right side of the abdomen was rigid and tender. The thigh was slightly flexed and internally rotated. The right erector spinæ muscles were spastic. The hip joint was normal. Examination of the pelvis, urine, and lungs was negative. The reflexes were slightly exaggerated. Osteomyelitis of the spine was ruled out by the absence of pain in the spine.

Appendectomy proved the appendix to be normal. On March 4, after the operation, the child became worse. On the night of March 5, her temperature rose to 105 degrees F. Death occurred March 7.

Postmortem examination showed a pure growth of staphylococcus aureus in the lungs and pleural cavities. Numerous colonies of staphylococci were found in the pleural cavities. The appendix stump and the hip joint, brain, and spinal cord were normal.

Upon removal of the pleura of the right side, the anterior part of the eleventh costovertebral joint was found to be eroded and the intercostal space above and below showed pus. Examination revealed Gram-positive cocci; culture gave streptococcus longus. The eleventh vertebra was normal. The middle costotransverse ligament on the right side had been partially separated by the pus.

In a review of the literature no similar case was found.

JOHN MITCHELL, M.D.

Bloodgood, J. C.: The Clinical Picture of Dilated Ducts Beneath the Nipple Frequently to Be Palpated as a Doughy, Worm-Like Mass; the Varicocele Tumor of the Breast. *Surg., Gynec. & Obst.*, 1923, xxxvi, 486.

Bloodgood finds that in the last few years the relative number of benign and malignant tumors

of the breast has changed as compared with the decade ending in 1900. In looking over the figures for the ten years previous to 1900, he found that operation not indicated in less than 2 per cent and the tumor was benign in only about 10 per cent. In the last 100 cases examined by him the clinical picture was such that operation was postponed in over 50 per cent, and in the majority of cases was not performed. In more than 25 per cent of the remainder the growths were benign.

The condition described in this article may be classified with chronic cystic mastitis. When the dilated ducts are situated in the nipple zone, a doughy worm-like mass beneath the nipple is felt on palpation. Exploration reveals large and small dilated ducts with a distinct wall which contain brown, green, milky, or cream-like material of various degrees of viscosity. When the tumor occurs in a zone of the breast outside the nipple area, it feels like a diffuse mastitis, but has not the distinct edge or border of the diffuse non-encapsulated cystic adenoma.

Dilated ducts within the nipple zone may give no evidences of their presence by pain, discharge from the nipple, retraction of the nipple, or palpable tumor. As there is no relation between this condition and malignancy there is no indication for operation if nothing is to be made out on palpation but a single or multiple doughy worm-like mass beneath one or both nipples.

Unfortunately, dilatation of the ducts beneath the nipple may be associated with palpable tumors of a different character and, in addition, there may be retraction or fixation of the nipple, dimpling, or fixation of the skin. In some instances the clinical picture so strongly suggests cancer that it seems only proper to perform the complete operation for cancer without exploration. In a few instances the re-active mastitis (periductal) is so marked that the tumor beneath the nipple has the induration suggestive of malignancy, and when it is explored, cuts and looks like cancer, the inflammatory tissue having become obliterated and having emptied the ducts. A few cases assume the picture of an abscess beneath the nipple and areola due to infection of a dilated duct, and in a very few cases the area is outside the nipple zone, the clinical picture closely resembling that of cancer.

Of the twenty-six cases of diffuse dilatation of the ducts situated beneath the nipple which are considered in this paper, fourteen are classed as clinically benign and nine as malignant, while in three the palpable tumor resembled an abscess. Bloodgood regards this type of dilatation of the ducts as a type of senile breast. It is most common after the age of 45 years, and the subjects are usually at the

menopause or have passed it. It has been observed in women who have never borne children and in those who have lactated once or more often without trouble. Trauma is not an important factor. As a rule the patient consults the physician soon after the onset because of pain or tenderness in the breast or a discharge from the nipple. The condition may have an acute onset which may subside, leaving the palpable worm-like tumor, or go on to abscess formation. The most important point in the diagnosis is the palpation of one or more doughy worm-like masses beneath the nipple. Experience seems to show that when the lesion can be recognized, operation is not indicated, but that when there is a definite picture of malignancy, either exploration or complete extirpation must be performed.

McMICKEN HANCHETT, M.D.

TRACHEA, LUNGS, AND PLEURA

Gast, W.: Bronchial Fistulæ (Ueber Bronchialfisteln). *Deutsche Ztschr. f. Chir.*, 1922, clxxv, 219.

Bronchial fistulæ are caused by trauma or inflammation. The distinction is made between "internal" and "external" fistulæ, and "lip" and "cavity" fistulæ, terms indicative of the etiology. Reference is made to retrograde breathing and the possibility of proving the presence of fistula by simple physical methods. Stress is laid upon aphonia in some cases. Occasionally these fistulæ heal spontaneously. In cases without retention of secretion operative measures are indicated. Reference is made to individual methods of operative closure, and to the indication for the establishment of an artificial fistula in cases of inoperable tumors of the intrathoracic air passages (Glud's fistula.)

Eight cases observed in the Leipzig Clinic are reported.

JEHN (Z).

Breccia, G.: Pleural Pressure and Lung Collapse in Artificial Pneumothorax (Pressure pleurica e collasso polmonare nel pneumotorace artificiale). *Policlín.*, Rome, 1923, xxx, sez. med., 89.

In his previous publications on artificial pneumothorax Breccia followed Forlanini's dictum, always maintaining that it is necessary to immobilize the lung. In practice, however, this is only rarely possible. Instead of an absolute collapse and a complete pneumothorax there is often only a "sufficient" collapse and a "sufficient" pneumothorax to mitigate the morbid syndrome.

In every case there is a certain optimum point of pulmonary compression which corresponds to a more or less complete collapse. In some cases this may be obtained at a pleural pressure even manifestly negative. Above and below this critical point the favorable action of the pneumothorax ceases and the phenomena of intolerance appear. Therefore Breccia now believes that the best rule to follow is to employ the minimum pleural pressure which will maintain the best pulmonary collapse.

W. A. BRENNAN.

Josefson, A.: Primary Cancer of the Pleura in Man and Wife. *Acta med. Scand.*, 1923, supp. iii, 159.

It is believed by many that the cause of carcinoma is not a condition in the cell itself, but some kind of germ infection. The author reports an instance of the occurrence of primary cancer of the pleura in man and wife. The man, who was 55 years of age, had suffered from attacks of gout but had never had syphilis. Complaint was made of shortness of breath. The clinical diagnosis was pleural effusion on the right side. Tapping was done on three occasions. At first the fluid was only slightly blood-stained but later contained considerable blood. X-ray examination showed a compact shadow in the lower two-thirds of the right lung. About a year later, metastatic tumors were found on the ribs and in the region of the gall-bladder. At about the same time the patient coughed up a concretion. Subsequently herpes zoster developed on the right side of the thorax. The patient died after an illness lasting sixteen months.

The man's wife consulted the author nine years later, at the age of 62. Examination revealed a large pleural effusion on the right side. On tapping, this yielded almost 2 liters of highly blood-stained fluid. Microscopic examination showed the exudate to contain large masses of cells. X-ray examination confirmed the diagnosis of pleural cancer. Fifteen years previously the patient had had erythema nodosum, and six years later herpes zoster on the right arm. The patient died during an attack of influenza.

Postmortem examination showed a primary cancer of the right pleura with metastases in the great omentum, the peritoneum, and the retroperitoneal lymphatic glands. Histological examination confirmed the diagnosis and showed numerous large cells with the chromatin arranged in stellar form within a lighter zone.

H. W. FINK, M.D.

Montenegro, V.: Malignant Tumors of the Lung (Sobre tumores malignos del pulmón). *Prog. de la clín.*, Madrid, 1923, xxv, 39.

Montenegro reports the methods by which he was able to exclude all other conditions except a malignant tumor of the lung in a man of 72 years. The principle symptoms were a loss of 10 kgm. in weight during the previous six months, the expectoration of blood, and occasional fever. The X-ray showed a mediastinal shadow extending principally toward the upper part of the right lung. In the lower part of this lung and in the other lung the invasion was less advanced. The picture suggested a lymphosarcoma originating in the mediastinal glands and extending by the lymphatics to the lung and pleura.

Palliative treatment was given. Thoracic pain, which was absent at the first examination, developed later. Death was preceded by œdema of the lower limbs and the symptoms of cerebral excitation.

W. A. BRENNAN.

HEART AND PERICARDIUM

Burian, F.: Operation in Two Cases of Cardiac Wounds (Zwei operierte Herzverletzungen). *Časop. lékař. česk.*, 1922, lxi, 585.

Case 1. The patient, an 11-year-old girl, collided with the edge of a desk and in doing so drove into her chest a needle she had run in the front of her dress. At operation four hours after the injury the cartilage of the sixth rib was resected and a 3-cm. opening was made in the pericardium. The needle was found sticking in the wall of the right chamber. The puncture wound did not bleed even after extraction. The removal of the needle was followed by suture of all layers without drainage. The patient made an uneventful recovery.

Case 2. The patient was a 26-year-old man who injured a branch of the left coronary artery in an attempt at suicide. At operation two hours after the injury a flap with its base outward was made over the third, fourth, and fifth ribs. The pleura was found to have been pierced and the pleural cavity was full of blood. The pericardium was greatly distended and black. At the left border was an opening 1 cm. broad, from which a blood clot protruded. On the removal of this clot, profuse hæmorrhage occurred. The opening was rapidly enlarged. The puncture wound of the heart was 8 mm. long but involved only the upper layers of muscle fibers. The branch arising from the left coronary artery had been severed at the juncture

of its middle and upper thirds. Catgut ligation was followed by suture of all layers without drainage. The wound healed by primary intention, but after the operation there were anginal attacks caused perhaps by anæmia of an area of heart muscle or a disturbance of conduction. KINDL (Z).

ŒSOPHAGUS AND MEDIASTINUM

McKinney, R.: Some Phases of Œsophageal Stenosis. *Ann. Otol., Rhinol. & Laryngol.*, 1922, xxxi, 977.

Chronic stenosis of the œsophagus may develop from a spasm due to local irritation resulting in thickening of the œsophageal walls. This stenosis may prove dangerous to life and yet may be non-malignant. The author considers that direct examination of the stenosis through the œsophagoscope is essential to determine its character. He reports four cases to illustrate the diagnosis of benign œsophageal stenosis with the œsophagoscope and the local treatment.

In one case of fourteen years' duration the stenosis was diagnosed as benign and dilated through an œsophagoscope. In the second case, which also was diagnosed as a benign stenosis, the irritative lesion proved to be luetic involvement of the cardiac end of the stomach with ulceration of the stomach. In the third case there was probably an associated neurosis. In the fourth case the stenosis was caused by pressure from a pulsion diverticulum of the œsophagus. WALTER C. BURKET, M.D.

SURGERY OF THE ABDOMEN

ABDOMINAL WALL AND PERITONEUM

Hey Groves, E. W.: A Note on the Operation for the Radical Cure of Femoral Hernia. *Brit. J. Surg.*, 1923, x, 529.

The author reports in detail a series of twenty-two cases. The advantages of the combined femoral and inguinal operation are enumerated as follows:

1. In cases of strangulated hernia, it gives ample room to deal with the damaged bowel and, if necessary, to perform a resection.
2. It has all the advantages of an inguinal approach, i.e., the possibility of closing the femoral canal from above without the necessity of dragging up the hernial sac through the femoral canal.
3. It allows the suturing of the conjoined tendon to Cooper's ligament with great precision, unhindered by the overlying Poupart's ligament.
4. Poupart's ligament, being freed from tension, can be snugly sutured as an extra covering over the line of suture between the conjoined tendon and Cooper's ligament.

There has been no recurrence in the author's cases.
E. C. ROBITSHEK, M.D.

Erdman, S.: Inguinal Hernia in the Male. *Ann. Surg.*, 1923, lxxvii, 171.

This article is based on 1,093 cases of elective operations for inguinal hernia performed by nineteen surgeons. Of these, 89.5 per cent have been followed to determine the late results. Of the latter group 6.7 per cent had recurrences.

TABLE I

Type	Operations		Recurrence	
	No.	No.	Per cent	
Oblique.....	665	21	3.15	
Direct.....	313	52	16.61	
Total.....	978	73	7.46	

TABLE II—TIME OF RECURRENCE FOLLOWING OPERATION IN 978 TRACED CASES

Operations		Total recur- rences	Recurrence first noted				Total within 2 Yrs.	
Type	No.		Within 6 mos.	Be- tween 6-12 mos.	Be- tween 12-18 mos.	Be- tween 18-24 mos.	No.	Per cent
Oblique...	665	21	10	6	2	2	20	95.2
Direct...	313	52	25	13	10	4	50	100
Total....	978	73	35	19	12	6	72	98.6

Several causes for early recurrence became evident in the series studied. These were as follows:

1. Direct sac overlooked at operation. In five instances the operator stated that no sac was found, but within three months a definite hernia was

present. All five failures occurred in cases diagnosed as bilateral direct hernia. The author's experience indicates that in such cases the peritoneum should be opened and the slack taken up, even if no definite sac is recognized.

2. Incomplete repair because of the patient's poor physical condition.

3. Postoperative accident.

The mortality was 0.32 per cent. Only one of the deaths was due to wound infection. The two others were caused by pneumonia and what appeared to be an embolus. Bilateral hernia was present in about 37 per cent of the cases, and in the follow-up records it was found that a bilateral hernia developed eventually in 37 per cent. Oblique hernia was bilateral in 26 per cent of the cases, and direct hernia was bilateral in 69 per cent. The combination, direct-indirect hernia, was bilateral in 63 per cent. These are sub-percentages of the bilateral group.

The Bassini operation was used for nearly all patients over 20 years of age. For many of those who were younger, the Ferguson non-transplantation method was used. This method seemed satisfactory when the musculature was good and the hernia small. The importance of high ligation of the sac is mentioned. Twenty-five per cent of the cases had direct hernia and in most of these the conjoined tendon was not recognizable. It is believed that in cases of direct hernia the cord should always be transplanted, and firm and deep closure of the weak triangle of Hesselbach should be done.

Of fifty-two cases of operation for recurrent inguinal hernia which were traced, 23 per cent had a recurrence.

The femoral vein was injured with the needle once, but a lateral ligature was applied and recovery was uneventful. In one instance an adherent small intestine was opened and despite immediate suture the wound became infected and the hernia recurred. The vas deferens was divided in six cases but without subsequent ill effect.

In seventy-seven early cases an appendectomy was done through the hernia incision, but this practice was discontinued as a routine procedure because of the danger of hæmorrhage or infection due to inadequate exposure.

Non-descent of the testes was found in twenty cases. All of these were treated by the Bevan method. In three, the results were good, but in the remainder the testes remained in the upper third of the scrotum, and in eleven they failed to increase in size. Orchidectomy was performed five times.

Division of the deep epigastric vessels was practiced in twenty-three cases in which the hernia was of the saddle-back direct-indirect type saddled across the epigastric vessels with a wide-mouth sac.

TABLE III—THE RESULTS OF DIFFERENT TYPES OF OPERATION IN 978 TRACED CASES

Type of operation	Oblique hernia			Direct hernia		
	Operations	Recurrences		Operations	Recurrences	
		No.	Per cent		No.	Per cent
Bassini	532	17	3.2	185	20	15.67
Bassini with rectus	13	11	84.6	35	4	11.40
Cord not transplanted	112	3	2.67	25	7	28.00
Extra-aponeurotic transplant of cord	8	1	12.5	64	10	15.62
Atypical repair	□	0		4	2	50.00
Total	665	21	3.0	313	52	16.61

In 21 per cent of these the condition recurred, and in one case death resulted from pulmonary embolism.

The average stay in the hospital in cases of oblique hernia was 13.7 days, while in cases of direct hernia it was 15.8 days. Recurrences developed in 10.9 per cent of the infected cases. Scrotal tumefaction occurred in 13 per cent, but in very few following operation for direct hernia.

DENNIS W. CRILE, M.D.

Fraser, F.: The Principles of the Surgical Treatment of Infection of the Peritoneum. *Bristol M.-Chir. J.*, 1923, xl, 29.

The author contrasts the treatment of peritonitis twenty-five years ago with the present method.

Formerly, the belief that the peritoneum had little power of resisting or controlling infection and that intestines whose peritoneal coat was inflamed tended to become paralyzed and, unless stimulated by artificial means, distended to a condition of acute obstruction, led to the adoption of the following technique: removal, when possible, of the main source of the sepsis; cleansing of the peritoneal cavity by washing; drainage by tubes or other mechanical means; the administration of purgatives; and abstinence from morphine.

Today, the practice advocated is based upon the principle of rest to inflamed structures and the belief that the peritoneum will be able to resist and control infection if the main source of sepsis is removed. The peritoneum is seldom washed or drained, purgatives are not administered, and morphine is given.

When bacteria gain access to the peritoneal cavity there is a rapid and copious protective effusion containing phagocytic cells which destroy the bacteria. A fine layer of fibrin forms over the intestinal surfaces which walls off the infection and protects the endothelium from the action of toxins. Irrigation destroys this protective membrane and does not reach every part of the peritoneum. Since lavage has been discontinued the mortality of peritonitis has greatly decreased.

The following conditions indicate the introduction of a drain into the peritoneal cavity for a short time: free oozing at the operative site which cannot be completely stopped; drainage at the point of expected leakage of a viscus (bile may discharge if a ligature cuts through a softened cystic duct after

the removal of a gangrenous gall-bladder); a localized abscess cavity; and drainage of a primary focus of infection not removed.

Rest to the intestines and peritoneum may be secured by the administration of morphine and abstinence from food. The author does not find that morphine induces paralytic ileus. Flatulent distention is easily relieved by means of a flatus tube or by enema and pituitrin.

WALTER C. BURKET, M.D.

Arai, K.: Experimental Investigations on the Gastro-Intestinal Movements in Acute Peritonitis (Experimentelle Untersuchung ueber die Magen-Darmbewegungen bei akuter Peritonitis). *Arch. f. exper. Path. u. Pharmacol.*, 1922, xciv, 149.

Arai found that the intraperitoneal injection into cats of 0.5 c.cm. of a 2 per cent solution of Lugol's iodine solution per kilogram of body weight produced a typical serofibrinous peritonitis characterized not only pathologico-anatomically but also roentgenologically by marked regularity in its course. The disease reached its maximum between forty-eight and seventy-two hours, and spontaneous healing occurred after a week. Slight adhesions appeared most distinctly forty-eight and seventy-two hours after the injection of iodine and disappeared completely after about five days.

The results of intraperitoneal injection of turpentine were less constant. A fatal dosage caused a typical hæmorrhagic peritonitis, but smaller doses were followed by a serous peritonitis or hyperæmia of the omentum. After repeated injections an aseptic, suppurative peritonitis resulted in only one case.

On the intraperitoneal injection of twenty-four-hour cultures of staphylococcus aureus, streptococcus pyogenes, or bacillus coli in fatal doses, all of the animals showed at the most a hyperæmia of the omentum, but the injection of 0.5 c.cm. per kilogram body-weight of a mixture of cultures of staphylococci and bacillus coli caused severe changes in the peritoneal cavity. Thirty per cent of all the animals died.

A marked retardation of the gastro-intestinal movement was demonstrable roentgenologically in iodine, turpentine, and bacterial peritonitis. On surviving rabbit intestine Lugol's solution acted as a stimulant. After the division of all the branches of the splanchnic nerve in healthy animals and those with peritonitis the emptying of the gastro-intestinal tract became more rapid. The therapeutic effect of cholin on gastro-intestinal paresis was also demonstrable in bacterial peritonitis. RIEDER (Z).

GASTRO-INTESTINAL TRACT

Still, G. F.: Congenital Hypertrophy of the Pylorus. *Brit. M. J.*, 1923, i, 579.

The author's experience with congenital pyloric stenosis covers a period of twenty-four years and a total of 248 cases. In this article he summarizes the findings in these cases and reviews the treatment.

Of the 248 patients, only thirty-seven were females. In about 50 per cent of the cases the child was the first-born. In four instances there were two cases in the same family. The vast majority of cases have their onset within the first six weeks of life. The most important symptoms are persistent vomiting, constipation, and loss of weight. Visible peristalsis and an abdominal tumor are always present. In 225 treated cases there were 156 recoveries and sixty-nine deaths.

During the past twenty-four years the treatment has undergone many changes. The author has seen a few cases in which the tumor and visible peristalsis disappeared spontaneously under a simple dietary régime. Of seventy-eight patients treated by gastric lavage, forty-three recovered and thirty-five died. Such cases are instructive as to the spasmodic origin of the hypertrophy.

With regard to the operative treatment the author states that the Rammstedt operation is simple, rapid, and exceedingly efficient, but has a considerable mortality. In twenty-eight cases in which this operation was performed there were eleven deaths from hæmorrhage, shock, or collapse. The author has therefore abandoned the procedure in his own practice and is now using the operation of forcible dilatation. In forty-six cases treated thus in the past eight years there was only one death. The low mortality Still attributes more to the skill of the surgeon who performed the operations for him than to the operation itself.

H. W. FINK, M.D.

Karatygin, W. M.: Syphilis of the Stomach (Zur Frage der Magensyphilis). *Sibirski Med. J.*, 1922, p. 135.

The author reviews 105 cases. Gummatous and sclero-gummatous infiltrations of the stomach usually develop in the submucosa, generally form circumscribed tumors, and are rarely of a diffuse character. The following stages of the process should be differentiated: infiltration, ulceration, and cicatrization.

Histologically, gummatous infiltrations consist of connective tissue profusely infiltrated by arterial, venous, and capillary vessels filled with blood and a large number of lymphoid cells which are often grouped in small islets in the granulation tissue. Such gummatous infiltrations become soft, the mucous membrane is broken through, and an ulcer forms with infiltrating borders of gummatous tissue.

A primary gastric ulcer may also arise as a result of the vascular change caused by the syphilis, chiefly through perivascular cellular infiltration. This ulcer is in no way distinguishable from the ordinary round ulcer.

Clinically, syphilis of the stomach runs its course as: (1) a chronic syphilitic gastritis which differs little from the ordinary chronic gastritis except that it is refractory to every non-specific form of treatment; (2) a gastric ulcer—the most frequent form; according to some statistics 20 per cent of all gastric ulcers are syphilitic ulcers—with characteristic pain

at night; (3) a neoplasm, which is usually interpreted as carcinoma; and (4) an infiltration which causes pyloric stenosis. Specific treatment leads to a rapid cure in syphilis of the stomach.

The author reports a case characterized by severe gastric symptoms, severe pain, frequent vomiting, and emaciation. On gastric analysis, the gastric juice of the fasting stomach was of the character of a sero-purulent exudate and consisted exclusively of pus cells (100 and more in a microscopic field). Hydrochloric acid was absent. As a phlegmonous gastritis could be excluded, the author believes the condition was an ulcerating process complicated by suppurative inflammation. The Wassermann reaction was 4+. Syphilis was suggested also by nodular formations in the liver and scars on the leg. Specific treatment with neosalvarsan and potassium iodide caused rapid improvement. GREGORY (Z).

Payr, E.: Old and New Aids in the Differentiation of Ulcer and Cancer of the Stomach (Altes und Neues zur Unterscheidung von Ulcustumor und Krebs am Magen). *Zentralbl. f. Chir.*, 1922, xlix, 1706.

The differentiation between ulcer and carcinoma is often not easy, even when the stomach is exposed, but is of great importance with regard to the choice of operation.

In cases of ulcer there is an active arterial reaction, while in cases of cancer the dull color of the dilated veins predominates. Ulcers as a rule are without sharply defined borders, their hardness decreasing gradually, and during the operation an ulcer becomes softer after ligation of the afferent and efferent vessels in the small and large omentum, while cancer remains unchanged.

In cases of ulcer, extension into the surrounding tissues occurs earlier and is more intensive than in cases of cancer. In cases of pyloric cancer which has not yet extended to the serosa the longitudinal muscle fibers are spread apart by the tumor extending through the pylorus and become visible as parallel fibrous bands on the surface of the stomach.

When, in cases of ulcer with a deep, smooth cavity, the opposite normal wall of the stomach is pressed in with the tip of the finger, the mucous membrane remains adherent in the ulcerous depression until the next muscle contraction. In cases of ulcerous cancer with its irregular, ragged, shallow crater this occurs very seldom.

In cases of ulcer the mesocolon fold is occasionally stretched out flat and adherent to the stomach, but its folds are not joined together by neoplastic infiltrations as is often the case in cancer.

The network of lymph vessels which sometimes becomes visible in cases of ulcer as the result of stasis must be differentiated from the lymph-vessel carcinomatosis which is frequently found in cases of cancer. In the latter, fine granules and a paste-like substance can be scraped out with the knife, while in the former an incision releases a whitish fluid.

VON TAPPEINER (Z).

Muller, E.: Ulcer of the Stomach as a Cause of Fever (*Ulcus ventriculi als Fieberursache*). *Mitt. a. d. Grenzgeb. d. Med. u. Chir.*, 1922, xxxv, 453.

A man 45 years of age, who had been treated previously for catarrh of the stomach and intestines, suffered with several chills, swelling, tenderness on pressure of the liver, and pleurisy with a sterile, serosanguinous exudate. The X-ray showed stenosis of the pylorus and greatly decreased gastric motility.

Operation revealed a tumor the size of a chestnut and metastases in the liver. A diagnosis of cancer was made. On account of the stenosis, a broad gastro-enterostomy was done.

After the operation the temperature was only slightly above normal for fourteen days, and subsequently was entirely normal. Within a year, the patient had gained 16.7 kgm.

From the disease picture the author concludes that without doubt this was a case of gastric ulcer rather than gastric cancer; that the metastases in the liver were metastatic abscesses; and that the latter were responsible for the exudate in the right pleura. He believes the stenosis of the pylorus caused increased gastric peristalsis which forced bacteria into the portal system exposed by the ulcer. These in turn caused the chills and the multiple abscesses and enlargement of the liver. After the gastro-enterostomy, when the introduction of bacteria into the portal system ceased, the liver returned to its normal size and the multiple abscesses became healed.

KINDL (Z).

Finsterer, H.: The Surgical Treatment of Ulcer of the Stomach and Duodenum. *Surg., Gynec. & Obst.*, 1923, xxxvi, 454.

Finsterer has favored radical resection of the stomach in the treatment of gastric and duodenal ulcers for many years. The end-results of this method are far better than those of simple gastro-jejunoscopy. From 1914 to date he has performed only forty gastro-enterostomies as compared with 427 resections. All acute ulcers should receive medical treatment. Many will heal spontaneously. Patients with acute perforating ulcers require immediate surgical treatment and can stand resection only in the first few hours after the perforation.

Bleeding duodenal ulcers which cannot be resected are usually treated by ligation of the pylorus with posterior gastro-enterostomy. To control the hæmorrhage, pressure is made with a tampon on the anterior duodenal wall.

The author employs splanchnic anæsthesia. His method is as follows:

A preliminary hypodermic of morphine is given and followed by the induction of local anæsthesia of the abdominal wall and peritoneum with 0.5 per cent novocaine. The space between the liver and stomach is exposed and the needle inserted above the coeliac trunk over the guiding finger which separates the aorta and vena cava. Into the soft tissues overlying the twelfth vertebra 50 to 70

ccm. of a 0.5 per cent novocaine solution are injected. When dense adhesions are present the lesser omentum is injected as well as the base of the mesocolon. It is essential to determine accurately the extent of the ulcer and to follow the choledochus from the juncture of the cystic duct to the ampulla of Vater. To remove the greater part of the acid-secreting mucous membrane, from two-thirds to three-fourths of the stomach must be resected. Removal of the pylorus and antrum of the stomach is not deemed sufficient to prevent the recurrence of symptoms.

In 427 cases operated on by Finsterer in this manner the mortality was 4.4 per cent. Since 1919 he has operated upon 296 cases of ulcer with a mortality of 2.3 per cent.

Finsterer regards splanchnic anæsthesia as the greatest advance in the surgery of painful penetrating ulcers. He has used it in 89 per cent of his cases of ulcer. There have been no lung complications and in no instance has a jejunal ulcer developed after the operation. The absolute cures in his cases after two years equal 94 per cent.

JOHN W. NUZUM, M.D.

Finsterer, H.: Operative Results in Acute Gastric and Duodenal Hæmorrhage (*Die Erfolge bei Operationen wegen akuter Magen- und Duodenalblutungen*). *Wien. klin. Wchnschr.*, 1922, xxxv, 913.

Four and a half years ago, on the basis of eighteen operations, the author proposed early operation in acute gastric hæmorrhage, contrary to the old dictum that acute hæmorrhage should be managed medically rather than surgically. This article is based on thirty-three additional operations.

The objections to surgical treatment are that death from hæmorrhage is more common than when medical treatment is given, and the results of operation are not as good as those of medical treatment. The author has selected from the operative records of four large Vienna hospitals for the last ten years every case in which an ulcer or scar was found and in which death resulted from hæmorrhage or perforation. There were 1,262 cases with a scar or ulcer. Perforation had occurred in 301, and a fatal hæmorrhage following erosion in 190. This shows that the number of cases with bleeding is not small, especially as cases in other hospitals and sanatoria and cases treated at home were not included.

With regard to the objection of those opposed to operation, that severe bleeding does not always arise from penetrating ulcers but may result from simple erosion, attention is called to the fact that in the cases of hæmorrhage mentioned simple erosion was the source of the bleeding was found only once. With regard to the objection that the results of medical treatment are more favorable than those of surgical treatment the author states that the mortality of medical treatment has been based on all cases of ulcer rather than only those with severe bleeding, while the mortality of surgical treatment

has been based on bleeding cases which came to operation, and that if the mortality of medical treatment were estimated only for cases with severe bleeding, the figure would be much higher. The mortality of medically treated cases with severe bleeding is at least 25 to 40 per cent. A mortality between 30 and 50 per cent in surgically treated cases, based on general statistics of various operations, late operations, and cases in which medical treatment was given up, cannot be used for comparison.

The author reports on fifty-one cases with ten deaths, a mortality of 19.6 per cent. Only figures of early operations should be compared with those of cases treated medically. When this is done the mortality in the author's cases was only 5 per cent as compared with 26 per cent in medically treated cases (Clairmont).

The objection that the bleeding ulcer is often not found is beside the mark, since even flat, uncalloused ulcers can always be discovered if every inflamed area in the serosa is examined closely as advised by von Hacker, and enlarged lymph nodes are examined according to the method of von Haberer. The objection that resection for the certain control of hæmorrhage is a procedure too severe is not always valid as early operation gives almost the same result as the usual resection. The author advises early operation from twenty-four to forty-eight hours after the onset of severe bleeding, at least in cases of chronic ulcer, as at this time a life-endangering anæmia has not developed and therefore the results will be more favorable. In twenty operations there was only one death (following ineffective arrest of bleeding after gastro-enterostomy). Early operation prevents fatal hæmorrhages from erosion and perforation. The author reports two such cases. The patients are now symptom-free, whereas those treated medically must eventually come to operation.

The diagnosis of callous penetrating ulcer is not difficult. Constant and severe pain points to penetration into the pancreas, in which case bleeding is an unfavorable sign. In duodenal ulcer severe hæmatemesis may occur if the erosion is proximal to the duodenal stenosis. Cessation of the hæmatemesis does not warrant the conclusion that the hæmorrhage has ceased, as closure of the cardiac end may be produced by distention of the fundus. A case of this kind is reported. In uncertain cases an exploratory laparotomy is indicated; if the history and findings exclude bleeding ulcer, medical treatment should be given. The author did not operate in eight cases of acute hæmorrhage, three cases of parenchymatous bleeding, one case of arteriosclerotic bleeding, one case of lues, one case in which removal to the hospital was contra-indicated, one inoperable case of perforation, and one case in which operation was refused. The best hæmostatic is resection. In cases of duodenal ulcer this is not possible if the ulcer reaches the papilla and the choledochus can no longer be isolated from the ulcerous tissue. In such cases ligation of the pylorus with heavy silk,

posterior gastro-enterostomy, the application of gauze pads against the duodenum which arches toward the abdominal wall, and the use of a compression bandage to press the pads and the anterior duodenal wall against the posterior wall and the bleeding ulcer are indicated. The compression may be released in from twelve to twenty-four hours. The thrombus cannot be washed away as the pylorus is closed off. Gastro-enterostomy is contra-indicated in acute hæmorrhage, especially in penetrating ulcer. Ligation of the arteries at the edge is of value only if the ulcer has penetrated a plexus and the bleeding results from this. Cauterization is employed only to check bleeding from a small, superficial vessel, never for bleeding due to erosion.

The result of operation depends on the degree and duration of the anæmia. The prognosis is poor in cases with bleeding of four to seven days' duration, a small frequent pulse, and an almost impalpable radial pulse. Blood transfusion is also probably valueless if the damage to the parenchymatous organs is too great. Early operation gives the best results.

Thirty-six cases were operated upon under local anæsthesia and fifteen with the addition of ether. Care must be taken in the administration of novocaine. Because of the anæmia, a 0.25 per cent solution should be used. Morphine should be avoided.

In the after-treatment all available remedies for combating the anæmia must be employed. If necessary, a direct blood transfusion should be given. Whether the latter should be performed before the operation or whether the bleeding should be stopped first must be decided in each case. Bleeding from small vessels can be arrested by increasing the coagulability, but not hæmorrhage from erosion.

ZIPPER (Z).

Robins, C. R.: The Roentgen Ray as an Adjuvant in the Treatment of Advanced Cases of Carcinoma of the Stomach. *Virginia M. Month.*, 1923, 1, 33.

Although this article is based on the observations in only one case, this case presented excellent opportunities for thorough study. It was fairly representative of the great majority of cases of gastric carcinoma which come for diagnosis and treatment when the disease has progressed so far that cure by radical operation is out of the question. As in many of these cases obstruction must be relieved by operation, it was thought that further amelioration of symptoms and possibly retrograde changes might be brought about by roentgen therapy applied subsequently.

In the case reported the diagnosis was made clinically and by roentgen examination. Operation was done, but as radical removal was found impracticable, only a gastro-enterostomy was done. This was supplemented by roentgen-ray treatment. Marked improvement resulted and continued over a period of fifteen months. The patient then died of carcinoma of the liver.

The experience in this case was so remarkable and so different from that of similar cases in which the roentgen ray was not used that the author is convinced this combination of operation for the relief of obstruction with treatment of the growth by the roentgen ray is a method which holds out great promise. Possibly some of the cases may be cured entirely, but if not, the prolonged relief afforded is certainly well worth the inconvenience and distress of the operation. Roentgen therapy is easily applied, and with modern technique the danger of untoward results is reduced to the minimum.

ADOLPH HARTUNG, M.D.

Mayo, W. J.: Radical Operation on the Stomach, with Especial Reference to Mobilization of the Lesser Curvature. *Surg., Gynec. & Obst.*, 1923, xxxvi, 447.

Carman emphasizes the importance of correlating the clinical examination with the roentgen examination, a point often neglected by diagnosticians who throw the entire diagnostic burden on the radiograph instead of using the latter as an aid to, and an extension of, the clinical examination.

INDICATIONS FOR RADICAL OPERATIONS ON THE STOMACH

Radical operations for cancer of the stomach have attracted the attention of surgeons for forty years, and for the last ten years have been resorted to with increasing frequency in cases of benign gastric lesions.

Gastro-enterostomy will cure more than 90 per cent of duodenal ulcers, and the excellent pyloroplastic operation of Finney with excision of the ulcer will add at least 5 per cent to the successful surgical group. There remains, however, a small but definite group of duodenal ulcers with deep excavations which cause severe hæmorrhages, in which gastro-enterostomy will fail to relieve the hæmorrhages and the pyloroplastic operation cannot well be applied. In such cases, at least, partial gastrectomy of some type is the operation of choice.

The field for partial gastrectomy is much wider in cases of gastric ulcer than in cases of duodenal ulcer. Gastric ulcers are usually greater in extent. They often slowly perforate, forming excavations into the pancreas, and lead to the formation of extensive and crippling adhesions. Hæmorrhages from these deep excavations are not infrequent, and may prove fatal. At best, in cases of the larger ulcers, a crippled, inefficient organ remains after excision of the ulcer with or without gastro-enterostomy. For the smaller gastric ulcers along the lesser curvature, which comprise about 75 per cent of ulcers of the stomach, the conservative cautery excision of Balfour with gastro-enterostomy has proved successful in at least 90 per cent of the cases to which it has been applied. For extensive ulcerations in the vicinity of the pylorus, the partial gastrectomy of Rodman (Billroth 2) has held steady place in the esteem of the conservative surgeon.

Judd has shown that in the cases of larger ulcers of the body of the stomach gastric resection in continuity gives satisfactory results. The Billroth 1 and 2, the Pólya, and the Balfour-Pólya methods of partial gastrectomy all have their special fields of usefulness. Each case must be treated on its merits, and the decision as to the procedure in a given case cannot always be made until surgical exposure makes possible accurate examination of the lesion.

In the author's opinion, a 10 per cent mortality following radical operations for cancer of the stomach is justifiable, and gives a just operability. If he finds that his mortality is running under 10 per cent he extends the field of operability, accepting cases for operation that previously he considered inoperable. This practice has resulted in remarkable success in certain cases. A mortality of 5 per cent following partial gastrectomy for ulcer of the stomach may, with difficulty, be justified, and yet if partial gastrectomy is applied only to cases of more advanced and extensive ulceration and cases in which relief has not been obtained subsequent to previous operations, the mortality, according to the author's experience, will be approximately 4 per cent. If patients with small ulcers and in good condition are operated on, this statistical mortality can be brought readily below 3 per cent. If the surgeon's pride in his statistical results with regard to operative mortality leads him to apply the radical operation to the easy, safe cases and to use the less radical procedure on the dangerous type of case, which perhaps could be justified from the standpoint of risk, the mortality can be decreased to 2 per cent. If, in addition, the surgeon accepts for radical operation patients with duodenal ulcers who are in good condition, there is no reason why the mortality following partial gastrectomy in skilled hands cannot be reduced to less than 2 per cent, making a relatively good showing as contrasted with gastro-enterostomy and pyloroplasty.

Admitting the force of the argument that partial gastrectomy permanently removes the ulcer-bearing and acid-controlling portion of the stomach, the author's personal experience has not yet led him to believe that partial gastrectomy has so wide an application to peptic ulcer.

MOBILIZATION OF THE LESSER CURVATURE OF THE STOMACH

Attention is called to the fact that the lesser curvature is the most important portion of the stomach. Cardiac fixation of the stomach is seldom an obstacle to successful operation, and we know how to liberate the pyloric end; therefore, in the great majority of radical gastric operations the lesser curvature is the key to the anatomical lock which interferes with the liberation of the stomach. If one studies the musculature of the stomach as related to the vascular and lymphatic connections of the lesser curvature, it is apparent that the bands which hold and fix this portion of the stomach can be seen readily at operation and divided. The

success of the procedure depends on early ligation of the gastric artery as close as necessary to the celiac axis, depending on the location of the growth in the stomach. After separation of the gastro-hepatic omentum from the under-surface of the liver, the distal end of the gastric artery is held taut, and the artery, glands, fat, and unyielding structures are dissected out of the lesser curvature toward the pylorus, the lateral vessels being caught and tied in succession as the holding bands are cut. The lesser curvature elongates remarkably, and in favorable cases the snipping of fibers here and there will permit the cesophagus to be drawn into view so that total gastrectomy can be performed if desired. Complete gastrectomy is sometimes indicated.

The Billroth 1 operation is again coming to the front, not only for cancers located in the pyloric end of the stomach, but also for many ulcers of the lesser curvature. This method has a wide field of application. Instead of removing an unnecessarily large area of the stomach as was done by the older forms of partial gastrectomy, it removes the disease, saves the normal stomach, and restores the gastro-intestinal canal by uniting the duodenum to the amputated end of the stomach.

In certain persons the shape, position, and movability of the stomach and the looseness of its attachments make it comparatively easy to remove the pyloric half and still directly anastomose the end of the gastric stump to the duodenum. If the end of the gastric stump is not more than twice the size of the end of the duodenum, the difference in caliber can be stitched out by placing two stitches on the gastric side to one on the duodenal side; it is surprising how smooth such an anastomosis will appear when completed.

Schoemaker was the first to free himself entirely from the Billroth prejudice. He recognized fully that the fatal suture angle did not occur when modern technique was used and showed that in a considerable percentage of cases the extensive removal of the lesser curvature of the stomach with sufficient of the pyloric end to accomplish the purpose of the operation would make possible a direct union between the cut end of the stomach and the duodenum. Experience in the Mayo Clinic in similar, but less carefully thought-out procedures have led to the acceptance of the Billroth 1 operation as a primary procedure on ulcers and carcinomata so situated on the lesser curvature and pyloric end of the stomach as to permit its application. The value of the method has been shown particularly in the last two years, since the lesser curvature of the stomach has been properly mobilized. After the application of the Billroth 1 method there is a tendency for the stomach to drop to the left of the spine, its weight exerting an injurious strain on the suture line uniting the end of the duodenum to the gastric stump. This difficulty has been overcome in these cases and also in cases in which, following excision of gastric ulcers or a Finney pyloroplasty, there is tension due to the dropping of the stomach

as a whole to the left of the spine. A point on the anterior wall of the stomach sufficiently far to the left is chosen, and the stomach is drawn to the right and attached to the suspensory ligament of the liver by several catgut sutures so as to bring the entire anastomosis to the right of the spine. There has been no suture leakage, and gastro-duodenal drainage is greatly improved.

Dagaew, W. F.: A Few Remarks Regarding the Character of Digestion After Operations on the Stomach and Intestines (Einige Worte ueber den Charakter der Verdauung nach Operationen am Magen und Darm). *Nautschnyje Sapiski Tulskowo Gubdrawa*, 1921, p. 23.

The pyloric portion of the stomach not only takes part directly in gastric digestion, but influences the secretion in the fundal portion in a reflex manner. In the isolated fundal portion no secretion takes place on the ingestion of food, but when the pyloric portion is isolated a plentiful secretion occurs in both the pyloric and the fundal portions.

After gastro-enterostomy, evacuation of the stomach takes twice as long as normally because the suction effect of the rhythmic contractions of the pylorus is lacking and the fundal part must overcome the resistance of the gastro-enterostomy opening which is kept closed by the stomach and gut tonus.

The second phenomenon noted, especially after resection of the stomach, is a considerable diminution in the acidity. The third is the backflow of the transpyloric secretions into the stomach. All these deficiencies of gastric digestion may be corrected by the intestine.

Dogs subjected to resection of the stomach and gastroduodenostomy by Kocher's method soon recovered and showed no differences from dogs not operated upon. Dogs subjected to operation by the Billroth 2 method remained lean, often suffered with vomiting, and died as soon as they were given coarse food. After gastric resection the duodenum becomes enlarged and, like a newly formed stomach, serves as a food reservoir. The gut works up the food in a compensatory way and resorption occurs chiefly in the lower part of the small intestine and the colon.

Resection of the gut has been studied experimentally by Solowjew and Stassow. Resection of one-half the small intestine is usually tolerated by man as well as animals. Eighty per cent of the small intestine is the maximum that can be resected. Extensive resection of the small intestine is followed by diarrhoea, loss of weight, thirst, and abnormal appetite. In time, these usually cease.

After extensive resection of the ileum there is a compensatory increase in gastric secretion—energetic digestion of protein—and the jejunum takes up the digestion and resorption of carbohydrates and fats. After resection of large parts of the jejunum the work of compensation falls upon the ileum. If the ileum also is resected at the same time, intes-

tinal digestion is taken up by the large intestine. Resection of the large intestine causes no change in nutrition.

GREGORY (Z).

Colmers, F.: Spastic Ileus in Grippe (Ueber spastischen Ileus bei Grippe). *Zentralbl. f. Chir.*, 1922, xlix, 1931.

The author reports three cases of spastic ileus in grippe. All came to operation on account of the symptoms of ileus. At operation a spastic contraction of the intestine was found.

Very often, the diagnosis "intestinal grippe" is made when symptoms of ileus are pronounced. Therefore it is better to make a small incision in the abdominal wall under local anaesthesia than to overlook a true ileus.

The etiology of intestinal grippe is not yet clear. It may be an effect on the intestinal musculature from the central nervous system, or an irritation caused by diseased glands of the mesentery, or a toxic effect caused by the contents of the intestine.

In the literature, only Schmieden, Massary, Grasmann, and Alexander have described similar cases.

HELLER (Z).

Bársony, T.: Duodenal Gastric Motility (Ueber die duodenale Magenmotilität). *Wien. klin. Wchnschr.*, 1922, xxxv, 916.

The association of increased tonus and peristalsis in duodenal ulcer, a wide-open pylorus, an increased rate of emptying, and abundant filling of the duodenum is designated as "duodenal gastric motility." This excitation of the gastric musculature is commonly ascribed to secondary vagus activity arising in a diseased area. Von Bergmann and his school regard vagus irritability as primary. It has been proved, however (Kirschner, Mangold, and Borchers), that after section of the vagus, normal as well as heightened muscle contractions of the stomach remain unchanged. The automatism of gastric peristalsis is regulated by the nervous system of the stomach, the plexus of Auerbach.

The excitation of the gastric musculature through the plexus of Auerbach, independently of the vagus, is explained on the basis of the intestinal law of Bayliss and Starling, viz., proximal to the point of stimulation there is muscle excitation and distal to this point there is muscle inhibition after section of the external nerves. The constant irritation of a duodenal ulcer therefore causes an inhibition in the distal part of the tract and increased muscle function in the proximal part. The spasm at the site of the ulcer, which can be demonstrated with the X-ray (Skinner, Carman, Akerlund), was established by the author and Baron theoretically over a decade ago. This arises in the duodenum itself and is independent of irritation of the vagus. The distal muscle inhibition manifests itself by atony of the bulbous or the duodenum, the presence of a residue for some time after the emptying of the stomach (Bailey), enlargement and abundant filling of the bulbous, and often stagnation of the accumulation

in the lower duodenum. The chief rôle is played by gastric hypermotility and insufficiency of the pylorus, but the atony also contributes greatly to the enlargement of the bulbous and the accumulation of its contents. The eccentric position of the pyloric opening is due chiefly to the contraction of scar tissue along the lesser curvature but may be caused also by atony of the antrum. The proximal muscle excitation is manifested by increased peristalsis and local spasms. The relationship between this and the duodenal irritation caused by the ulcer is clear.

The proximal spasm arises through the plexus of Auerbach, and the local spasm at the site of the ulcer is caused either in the same way or through irritability of the musculature. That the pylorus, which is proximal, does not show any contracture (pylorospasm), but on the contrary stands agape, is explained as follows:

The contractability of a sphincter is determined by its proximally situated hollow organ. The amount of opening at the pylorus depends upon the degree of contraction of the stomach (Barony). In duodenal ulcer the muscle function of the stomach is increased in accordance with the intestinal law, and the pylorus therefore opens more widely.

The symptoms described are not always noted. Spasm at the site of the ulcer is rare, and most often observed in cases of chronic deep-seated ulcers. The distal inhibition is not demonstrable when the irritation of the ulcer is slight, in scar-tissue contracture of the duodenum, and when, in motor insufficiency of the stomach, very little of the ingesta reaches the bulbous. Proximal excitation is noted more frequently because alterations in the stomach are more easily demonstrated and because, in man, these excitations are more marked than the distal inhibition. When this increased muscle function is not demonstrable or is transitory the condition is advanced and depression of muscle function has already taken place (diminution of tonus and peristalsis). Pressure over the stomach or duodenum, massage, and twenty-four-hour fasting relax the muscle excitation (stomach of the maximal secretory type).

ZIPPER (Z).

Barling, S.: Chronic Duodenal Ileus. *Brit. J. Surg.*, 1923, x, 501.

Chronic duodenal obstruction may arise from a number of causes. Some may be congenital, such as atresia, ring pancreas, or duodenal fixation by adhesions, while others may be the result of tumor growth. The most frequent cause, especially in cases of visceroptosis or abnormality of the vessels, is pressure of the mesentery and its vessels as they cross the duodenum. Attention has already been called to the local and general toxic effects produced by duodenal stasis and its effect in the production of gastric and duodenal ulcer, cholecystitis, and pancreatitis.

The symptoms are gradual in onset with acute exacerbations with epigastric pain, copious vomiting, flatulence, and epigastric distention. Absorp-

tion may cause headache and dizziness, and even a mild icterus. The onset of pain is not definitely related to the taking of food and the pain is not as severe as that of gastric ulcer. The presence of bile in the vomitus is an important feature of the clinical history. The X-ray is of great value in the diagnosis, but in many cases the findings of gastric retention are similar to those of pyloric obstruction. As a rule gastric analysis does not aid in the diagnosis.

The author reports seven cases. In five the condition was caused by the pressure of the mesenteric vessels on the duodenum. All showed patency of the pylorus and dilatation of the duodenum with constriction at its termination. In the fifth case there was obstruction with chronic gastric ulcer of the lesser curvature. Duodenojejunostomy or gastro-enterostomy proved successful in every instance. In the sixth case the obstruction was caused by a scirrhous carcinoma of the pancreas, and in the seventh by fibrous tissue of unknown origin.

The treatment is directed toward the relief of visceroptosis if it is present. If there is dilatation of the duodenum, operation is necessary. The procedure of choice is duodenojejunostomy, but when this is impracticable or impossible, resort must be had to gastro-enterostomy. WILLIAM J. PICKETT, M.D.

Koennecke, W., and Meyer, H.: Clinical and Experimental Data on Chronic Duodenal Stenosis (Klinisches und Experimentelles zur chronischen Duodenalstenose). *Deutsche Ztschr. f. Chir.*, 1922, clxxv, 179.

Chronic duodenal stenosis is not as rare as is generally believed. The authors describe three cases, two of which were operated upon. Laparotomy showed that the cause of the disturbances was neither a scar stenosis nor an organic narrowing of the lumen of the bowel. By a duodenojejunostomy the symptoms were greatly alleviated. As seen by fluoroscopic examination, the stenosis is caused by a movable obstruction, probably the root of the mesentery drawn over the duodenojejunal flexure. It is therefore not a stenosis in the strict sense of the word, but a compression. Although it is possible that the symptoms may be alleviated by gastro-enterostomy, there is no basis for this operation in the treatment of duodenal compression. In such cases gastro-enterostomy is unphysiological because, on account of the stasis of the duodenal contents and the soon-appearing alkaline reaction, there is no obstruction at the pylorus (pyloric insufficiency), and the chyme will flow through the gastro-enterostomy only when these parts are filled more fully. The neutralization of the hydrochloric acid of the stomach also acts unfavorably.

The authors reject the assumption that disturbances of innervation may be responsible for stasis of gastric contents. They believe the cause is a change of position and pressure in the abdomen, viz., a more marked bending forward of the lower thoracic and the upper lumbar portion of the spine, a de-

crease in the mesenteric fat, dilatation and sinking of the stomach, or relaxation of the abdominal wall. All of these conditions lead to misplacement of the duodenum in its relation to the root of the mesentery and the flexure. To prove this theory experiments were made on dogs. The lumen was narrowed by means of fascial strips which nearly surrounded the bowel and were fixed to the curvature of the ribs. It was found that the picture of chronic duodenal stenosis can be produced experimentally by partial stenosis of the lumen of the bowel. The authors also sectioned the vagus at the cardia near the stenosis. In this experiment they noted an influence on the tonus of the gastric musculature and a temporary arrest of movement.

From these facts it seems evident that the cause of chronic stenosis of the duodenum is a mechanical compression at the level of the duodenojejunal flexure, caused probably by the root of the mesentery or the superior mesenteric artery. COLLEY (Z).

Koennecke, W.: Experimental Investigations Regarding Duodenal Obstruction and Atony of the Stomach (Experimentelle Untersuchungen ueber Duodenalverschluss und Magenatonie). *Beitr. z. klin. Chir.*, 1922, cxxvii, 698.

The author experimented on dogs with regard to the cause of duodenal obstruction and atony of the stomach and the relationship of these conditions to one another.

In five dogs the bowel was ligated and suspended from the ribs. In four dogs a bilateral subdiaphragmatic vagotomy was done simultaneously with the duodenal fixation, and in two dogs it was done at a different time.

Stenosis and closure of the duodenum alone did not produce the picture of arteriomesenteric obstruction, causing only that of duodenal stenosis with vomiting. Closure of the duodenum with atony of the stomach is due, not to mechanical factors entirely, but chiefly to a disturbance of innervation such as paralysis of the vagus, irritation of the sympathetics, or a direct influence on the superficial nerves. Vomiting does not occur. The lengthening of the stomach cuts off the duodenum where it is fixed most strongly. In man, this point is the end of the duodenum, while in the experimental animals it was where the stenosed duodenum was suspended on the ribs. VON REDWITZ (Z).

Jenckel and Schueppel: Peptic Ulcer of the Jejunum (Ueber Ulcus jejuni pepticum). *Deutsche Ztschr. f. Chir.*, 1922, clxxv, 337.

The authors discuss the question of peptic ulcer of the jejunum arising postoperatively on the basis of seven cases which they report in detail.

In Case 1 a posterior gastro-enterostomy was performed for pyloric ulcer. The patient soon became free from symptoms and gained considerably in weight. Eight months later gastric symptoms developed anew, and four years later it was necessary to operate again because of jejunal ulcer. At the

second operation it was found that the pyloric ulcer was healed, but that the jejunal ulcer had caused a narrowing of the lumen of the gut. A new anastomosis between the stomach and the jejunum was therefore established on the posterior wall of the stomach. The patient again recovered, but in six months there were symptoms which suggested perforation of the intestine. When the abdomen was re-opened a perforating ulcer which had destroyed the gastro-enterostomy was found at the juncture of the two jejunal loops. A Braun anastomosis was performed further down and a connection established between the stomach and the small intestine on the anterior gastric wall. One year later there was a renewal of symptoms with signs of peritonitis. At the site of the gastro-enterostomy a painful tumor was found. Operation was refused. A strict diet was ordered. Improvement followed with absence of symptoms for nine months. Three and a half years after the last operation severe abdominal pain recurred with constipation and signs of ileus. Operation disclosed a volvulus of the ascending colon of 180 degrees. A coil of small intestine lay behind and to the right of the colon and prevented spontaneous replacement. Death occurred two days later.

In the second case, which ran a similar course and in which several operations were performed for gastro-enterostomy and a Braun anastomosis, the lower half of the stomach was finally resected with the gastro-enterostomy opening and the contiguous small intestine, the upper end of the duodenum was converted into a blind sac, the distal loop of jejunum was carried obliquely across and united with the transverse incision in the stomach, and the lower end of the duodenum was implanted side-to-side in the jejunum. Today, five years after the operation, the patient is entirely free from symptoms.

In the third case a second operation performed two years after a posterior gastro-enterostomy revealed to the left of the gastro-enterostomy a communication between the transverse colon and the jejunum which was round, admitted the tip of the middle finger, and was lined with mucosa. After separation of the parts, the opening was sutured transversely and an anterior gastro-enterostomy was performed. Three days later, because of the establishment of a vicious circle, a Braun anastomosis was done 15 cm. lower down. The patient recovered.

In Case 4, because of a pyloric ulcer, unilateral isolation of the pylorus according to von Eiselsberg's method and an anterior gastro-enterostomy were done. The patient was then free from symptoms for five months, but at the end of that time, because of attacks of pain indicating a peptic ulcer of the jejunum, an extensive resection of the jejunum with suturing and a Braun anastomosis were performed. Six months later it was again necessary to operate because of a new jejunal ulcer which developed in the distal loop of the jejunum. The ulcer was excised and a posterior gastro-enterostomy was done, the distal loop being used. Three weeks later another peptic ulcer was found at the site of the

previous resection and was excised. The patient had severe symptoms for months, recovering slowly, and was discharged from the hospital after a year and a half in poor physical condition. Full recovery did not occur.

In the fifth case the jejunal ulcer developed a year and a half after a posterior gastro-enterostomy and perforated at two points. The perforations were sutured and an anterior gastro-enterostomy with a Braun anastomosis was performed. Up to the present time the patient has remained well.

In the sixth case, because of a scar, a resection of the anterior wall of the duodenum was performed according to the Reichel-Pólya method. Following an intestinal hæmorrhage the patient recovered, but at a second operation one month later the jejunum was found constricted below the anastomosis by two bands of adhesions. The bands were released and sutured. Intestinal hæmorrhage recurred and resulted fatally in thirteen days. Autopsy showed a large perforating jejunal ulcer in the posterior sutures of the gastro-enterostomy, which had penetrated into the pancreas, and a severe hæmorrhagic nephritis with infarction.

In the last case a wide resection by Reichel's method was performed in 1920 for pyloric ulcer. From one and a half to two years later hæmorrhage occurred in the gastro-intestinal canal. A second operation then disclosed a peptic jejunal ulcer about the size of a quarter close to the posterior anastomosis. Just below the anastomosis two mesenteric lymph nodes pressed against the distal loop of jejunum. These were extirpated and the ulcer was sutured. Uneventful recovery followed, and up to the present time, twenty-one months after the operation, the patient is symptom-free.

On the basis of their findings the authors believe that since the tendency of an ulcer toward spontaneous healing may be slight, the management should be surgical in order to verify the diagnosis. Of the six cases cited, the second, third, and fifth may be considered cured. In the second case the cure was effected by the sixth operation, wide resection and anastomosis according to Roux; in the third case, by the simple release and suturing of the jejuno-colic fistula and an anterior gastro-enterostomy in addition to the already present posterior gastro-enterostomy; and in the fifth case by the anterior gastro-enterostomy with a Braun anastomosis in addition to a posterior gastro-enterostomy. From this it may be concluded that in selected cases a permanent cure is attainable through conservative measures. However, as the result of a conservative procedure (Cases 1, 2, 4) is still very uncertain, it seems most practical to perform a wide resection with removal of all ulceration and new growth in the vicinity of the ulcer and, if possible, a von Haberer implantation of the duodenal stump into the remaining portion of the stomach according to the Billroth I method. This procedure is usually possible if the ulcer developed after a simple gastro-enterostomy.

CREITE (Z).

Diaz, C. J.: The Pathogenesis of Mucorrhœal Neuro-Colopathy (Sobre la patogenia de la neuro-colopatía mucorreica). *Siglo méd.*, 1923, lxx, 203.

The author reports the case of a 38-year-old man who, after a secondary colosigmoiditis, developed a typical mucocolitis with the general symptoms of dystonia of the sympathetic nervous system. Diaz believes the present conception of muco-membranous colitis should be discarded. Mucous colitis is distinct from vagotonic mucous colitis. The latter, which is a true myoneurosis of the colon, Diaz believes may be fittingly designated as a "neuro-colopathy" or a "colonic myxorrhœa." It may be a primary condition or secondary to an acquired or paratypical vagotonia. The possibility that the sympathetic nervous system and the general condition may be radically changed by a chronic enteropathy makes the careful treatment and study of such conditions of great importance. In the author's opinion the expulsion of membranes has no other significance than the co-existence of mucus and increased fatty acids in the intestinal lumen. W. A. BRENNAN.

Lefebvre, C.: The Treatment of Chronic Intestinal Stasis by Cæcosigmoidostomy (Du traitement chirurgical de la stase intestinale chronique par la caeco-sigmoidostomie). *Presse méd.*, Par., 1923, xxxi, 175.

The operation for chronic intestinal stasis should be based on the normal function of the intestine. In the author's opinion, cæcosigmoidostomy best meets the requirements. As there is no obstruction in the intestinal lumen, the object of an anastomosis is to establish drainage of the supercharged colon. Cæcosigmoidostomy drains the right colon and preserves the function of the ileocæcal valve and proximal colon. W. A. BRENNAN.

Stone, H. B.: The Surgical Treatment of Chronic Ulcerative Colitis. *Ann. Surg.*, 1923, lxxvii, 293.

When chronic ulcerative colitis is recurrent, becoming severe and resisting medical management, surgical measures may be considered. Of these, appendicostomy as a semipermanent opening for irrigation of the bowel below was formerly a favored method but failed to cut out the colon as an exit to feces and irritants. Cæcostomy was found to be little better. To secure complete physiological rest of the colon the logical procedure is a complete ileostomy. After any one of these operations a patient who previously passed from fifteen to twenty bloody stools daily will be constipated for two or three days. This is due to the postoperative paresis, and in cases in which appendicostomy has been performed there is usually a recurrence. Ileostomy requires more tedious after-care but entirely excludes the colon and gives better results than the other operations.

In performing ileostomy the author divides the ileum with the cautery between two pursestring sutures. The two blind ends are then abutted against each other and a circular end-to-end suture

of the bowel is done with interrupted mattress sutures of fine silk. This leaves the ileum closed by a double diaphragm. The loop of ileum just above the ileocæcal valve is selected for this purpose. The gut about 2 in. proximal to the closure is brought up and fastened in the wound, to be opened some hours later for the introduction of a tube. In this manner the ileostomy is established and the colon excluded. The appendix is then brought up through a separate incision and used as an opening to irrigate the colon. Ultimately the double diaphragm is perforated by a knife introduced downward from the ileostomy opening and the ileostomy is closed. The artificial opening is kept open until all evidence of colitis has disappeared. H. W. FINK, M.D.

Mandl, F., and Gara, M.: An Experimental Study on the Suturing of Non-Peritonized Sections of Intestine Following Resection (Experimentelles zur Naht nicht peritonealisierter Darmabschnitte nach Resektionen). *Zentralbl. f. Chir.*, 1922, xlix, 1855.

The difficulties of producing a permanent union between non-peritonized and peritonized sections of intestine are met chiefly in the lower portion of the œsophagus, the lower portion of the duodenum, and the sigmoid. On the basis of extensive experiments on rabbits, the authors dissect a cylinder of serosa or a flap of serosa from the portion of gut supplied with peritoneum, excise the muscularis mucosæ lying under that portion, and after accurately suturing the mucosa, cover this area with the cylinder of serosa. Of importance for successful results is suture of the mucosa so that the cylinder of serosa, which must not be longer than 1 or 2 cm., does not come into contact with the intestinal contents. KALB (Z).

Berczeller, L., and Szilárd, Z.: The Spontaneous Formation of Anastomoses of the Intestine (Ueber spontane Anastomosenbildung des Darmes). *Wien. klin. Wchnschr.*, 1922, xxxv, 1006.

During experimental research on the utilization of starch preparations taken by mouth, the authors occluded the intestine by means of a silk ligature placed in the lowest part of the rectum. In white rats of medium size the gut was passable again after four or five days, but not in mice. The authors regard this fact as proof that spontaneous repair does not occur in the same manner in all species of animals. HOFFMANN (Z).

Armstrong, A.: Pulmonary Tuberculosis and Appendicitis. *Atlantic M. J.*, 1923, xxvi, 446.

Tuberculosis of the vermiform appendix is more common than was formerly supposed but is often overlooked. The possible association of appendicitis with pulmonary tuberculosis is not sufficiently emphasized in the surgical literature. During a period of two years 12.5 per cent of the author's patients in private sanatoria were subjected to appendectomy. White found the percentage of tuberculous appendices in the records of the Phipps

Institute to be as high as 59. All of these patients died of advanced tuberculosis.

The percentage of tuberculous appendices removed at operation as reported in the literature varies. Deaver gives it as 0.2 per cent; Murphy, as 2 per cent; Herisson, as from 1 to 2 per cent; Lockwood, as 2 per cent; Fitz, as 3 per cent; and Mayo, as 1.5 per cent. King found a tuberculous appendix in 25 per cent of twenty-eight cases.

Kelly reported a case of primary tuberculous appendix and mentioned five others from the literature.

Persons operated upon for appendicitis frequently develop pulmonary tuberculosis, the focus of infection having been present in the lungs at the time of operation. Hence, except in an emergency such as a fulminating pus appendix, a careful preliminary history and physical examination should be made by one accustomed to examine and treat pulmonary tuberculosis.

The author endorses the removal of the diseased appendix. His conclusions with regard to the tuberculous appendix are summarized as follows:

1. Appendicitis is often tuberculous. While it may be primary, it is usually secondary to a focus in the lungs, either active or dormant. Rarely, it is secondary to a lesion in the intestines.

2. Appendicitis is often followed by ill health which culminates in active pulmonary disease.

3. A careful history and physical examination, with the X-ray if possible, should be made of all cases about to be operated upon, to discover whether an active or latent lesion is present.

4. Local anæsthesia should be used, with gas oxygen as a second choice. Ether is to be condemned for these cases.

5. The convalescence should be prolonged to avoid subsequent activation of any lung lesion present.

WALTER C. BURKET, M.D.

Kuttner, L.: Practical Advice with Regard to the Diagnosis and Treatment of Diseases of the Digestive Tract. The Cause of the Pains Frequently Persisting After Appendectomy (Praktische Ratschläge fuer die Diagnose und Behandlung der Verdauungskrankheiten. Worauf sind die nach Appendektomie oeffters zurueckbleibenden Beschwerden zurueckzufuehren?). *Deutsche med. Wchnschr.*, 1922, xlviii, 1604.

Abdominal pain occurring after appendectomy may be caused by adhesions. These are to be expected soonest in cases in which the inflammation was not confined to the appendix alone, and particularly those in which primary closure of the operative wound was impossible. Such adhesions may cause acute intestinal obstruction with and without strangulation, incarceration, or chronic intestinal stricture. In all doubtful cases an X-ray examination with the use of opaque meals and enemas is necessary.

Frequently, however, it is not adhesions which cause the complaints but a functional or an inflammatory catarrhal process producing alternating constipation and diarrhœa. As a rule these symp-

toms were present previous to the operation, the appendicitis being only a part of a diffuse intestinal disease.

More frequently, gastric or duodenal ulcer is the cause of continuous or intermittent pain after appendectomy. Disease of the bile passages, especially gall-stone disease, is another cause. In the female, diseases of the adnexa must be considered. Diseases of the urinary tract, especially pyelitis, may give rise to symptoms after operation. Disease of any abdominal organ may be responsible. If organic disease can be excluded, a disturbance of the nervous system may be the cause.

COLLEY (Z).

LIVER, GALL-BLADDER, PANCREAS, AND SPLEEN

Margarucchi, O.: Non-Parasitic Cysts of the Liver, Especially Solitary Neoplastic Cysts; Unilocular Cystadenoma (Sulle cisti non parassitarie del fegato con particolare riguardo alle cisti neoplastiche solitarie: cistoadenoma uniloculare). *Polichlin.*, Rome, 1922, xxix, sez. chir., 649; 1923, xxx, 16.

Non-parasitic cysts of the liver are rare. Margarucchi reports two cases. In the first there was a solitary cyst of the right lobe from which more than 8 liters of fluid were drained. Following this evacuation the cyst was marsupialized as it was found impossible to extirpate it. In the second case there were multiple cysts in the lobe of the liver. These were punctured but it was impossible to remove the mass. The patient's condition gradually became worse and he died a short time later.

Margarucchi gives short histories of fifty cases of solitary cyst of the liver of neoplastic origin which he collected from the literature. With regard to the pathogenesis, it is generally agreed that these cysts are neoformations due to proliferation of the lining epithelium of the bile ducts.

Margarucchi enters into a very detailed discussion of the anatomopathology, etiology, symptoms, etc., and includes in his article several photomicrographs of the cyst walls.

W. A. BRENNAN.

Hartmann-Keppel, G. L.: Ascariasis of the Liver and the Bile Ducts (L'ascaridiasse du foie et des voies biliaires). *J. de chir.*, 1923, xxi, 157.

The author reports two cases. The first was that of a 34-year-old man whose symptoms led to a diagnosis of liver abscess close to the skin. Two lumbricoid worms, 19 and 24 cm. long, were found in the pus of an abscess in the left lobe of the liver.

The second case was that of a girl 12 years old who was subject to epileptiform convulsions and attacks of pain in the region of the liver. The history indicated intestinal ascariasis. A diagnosis of abscess of the left lobe of the liver was made. At operation a hepatic abscess containing a dead ascaris 23 cm. long was found.

Ascaris larvæ may develop and remain in the intestine, or may reach the liver by the portal vein

and develop in the glandular parenchyma, or may reach the liver by the bile ducts and develop in the gland itself or become arrested in one of the ducts.

The author treats at length of the pathological anatomy, symptoms, and diagnosis of the affections of the liver and bile ducts which may be caused by the ascaris.

Although in amoebic abscess emetin not only overcomes the initial congestion but, according to certain authors, may cause the resorption of even large collections of pus, rendering operative evacuation unnecessary, there is nothing to show that vermifuges may act in the same way. Nevertheless the early administration of a vermifuge is the best method of preventing complications.

W. A. BRENNAN.

Mayer, L., and Konings, J.: The End-Results of Omentopexy in Cirrhosis of the Liver (Résultats éloignés de l'omentopexie dans les cirrhoses du foie). *Bruxelles-méd.*, 1923, iii, 502.

In 1904 Monprofit collected 224 cases of hepatic cirrhosis treated surgically. The results in eleven are unknown. In the 213 others there were seven operative deaths, nine deaths from shock, and twenty-six deaths from other causes, a total mortality of 18 per cent. Improvement in the technique and the use of local anaesthesia have greatly reduced this high mortality.

In the authors' opinion, Talma's omentopexy is a safe procedure, the mortality being due, not to the operation, but to progress of the condition for which it was performed. In this article three cases are reported. The first patient, who was operated upon in 1915 for biliary cirrhosis, is still in perfect health and able to perform heavy work. The second, who was an alcoholic, has remained cured for eight years. The third, who was operated upon *in extremis* three and one-half years ago for hepatic cirrhosis with considerable ascites, is also well.

According to Montprofit's statistics, the percentage of definite recovery from omentopexy in cirrhosis was 50 per cent. This included cases which could not be treated with the knife. Taking into account the improvement in technique, the authors estimate the chance of recovery at 75 per cent, especially if the patients are sent to the surgeon in good general condition.

W. A. BRENNAN.

Braun, W.: Surgical Interference in Acute and Subacute Atrophy of the Liver (Chirurgische Eingriffe bei akuter und subakuter Leberatrophie). *Klin. Wchnschr.*, 1922, i, 2510.

Since the World War, acute and subacute atrophy of the liver has become far more prevalent at an earlier age. The most severe cases are not seen by the surgeon but, on the other hand, the less stormy forms come to operation sooner or later because of the impossibility of making a differential diagnosis between obstruction of the common duct and ascending cholangitis. The author has operated upon five such cases of atrophy of the liver. In two,

there was a combination of calculous cholangitis and acute atrophy of the liver:

Case 1. The patient gave a history of ten attacks of gall-stones. The illness for which the author was consulted began four weeks previously. Icterus had been present for two weeks. A stone-filled gall-bladder was removed. The bile ducts were found free from stones. There was no drainage of the hepatic duct. Death occurred the following day. Autopsy showed severe acute atrophy of the liver.

Case 2. At cholecystotomy two stones were removed. The walls of the common duct were soft and not distended. The surface of the liver was somewhat hardened. There was no further appearance of bile in the passages. Death occurred after five days with evidences of cholæmia. Autopsy showed central necrosis of the liver lobules.

Case 3. The patient was an unmarried woman of 33 years who had been ill for twelve weeks, and for nine weeks had had icterus with fever and chills and clay-colored stools. At operation the gall-bladder was found only slightly changed. The choledochus was not distended. Operation consisted of cholecystectomy and drainage of the choledochus. Microscopic examination of a small piece of the liver showed acute atrophy. The flow of bile was well re-established and the patient recovered.

Case 4. The patient was a man 39 years old who had been ill for fifteen days and had had icterus for four days. At operation the gall-bladder was found greatly distended but there were no stones. Cholecystectomy was done with choledochus drainage. The bile passages were normal. Histologic examination of a piece of liver showed broken-down and defective liver cells with small-cell infiltration. There was an active flow of bile. Complete recovery resulted.

Case 5. The patient was a girl 18 years old who had a fatal corpus luteum hæmorrhage with atrophy of the liver.

The author raises the question whether in such cases it is better to confine oneself to an exploratory laparotomy or to drain the bile passages. From his own experience it appears that drainage may exert a direct healing effect upon the parenchymatous disease of the liver as it removes the stagnating bile and the toxic degeneration products of the liver cells. Drainage of the passages is indicated also in unfavorably progressing cases of atrophy of the liver.

WOHLGEMUTH (Z).

Flint, E. R.: Abnormalities of the Right Hepatic, Cystic, and Gastroduodenal Arteries, and of the Bile Ducts. *Brit. J. Surg.*, 1923, x, 509.

This article is based on 200 postmortem dissections. In the author's opinion, anomalies of the hepatic and cystic vessels and the bile ducts are more frequent than is generally believed. In twenty-five cases the right hepatic artery was found to pass in front of the hepatic duct. In forty-two, it arose

from the superior mesenteric artery, and in a few cases there were two vessels, one from the hepatic trunk and one from the superior mesenteric. In a few older persons it was found tortuous and displaced to the right.

Anomalies of the cystic artery are less common. This vessel has been found to arise from the left hepatic and gastro-duodenal arteries and to pass in front of the common hepatic duct. Of more importance is the finding of an accessory cystic artery arising from the right hepatic, gastro-duodenal, or superior pancreatico-duodenal arteries. This may be seen passing along the course of the common duct and its presence may account for the occurrence of severe and unexpected hæmorrhage when the duct is opened.

Anomalies of the ducts consisted of low juncture of the cystic and hepatic ducts. In a few cases these met in the portion of the common duct which lies within the duodenum. The cystic duct may be found very tortuous, so that it may meet the common duct from the front or the left, instead of from the right. In several cases an accessory right hepatic duct was found. In the majority, this arose at the extreme right of the portal fissure and joined the extra-hepatic ducts between the junction of the left and right hepatic ducts and the point where the cystic enters the common duct. In one specimen it entered the cystic duct.

Aside from the dangers of hæmorrhage from an accessory or displaced cystic vessel during operation, the ducts themselves require careful investigation. Abnormal positions of the ducts favor injury to the common or hepatic duct during cholecystectomy. In cases of an accessory right hepatic duct there is danger of leaving the duct untied, this resulting in leakage of bile after operation. The author cites a case in which death occurred from general peritonitis after operation and autopsy revealed the abdomen partially filled with bile; the ligature on the cystic duct was intact, but an accessory hepatic duct was discharging bile. He believes this state of affairs is present in many cases which drain bile after cholecystectomy. He favors drainage after cholecystectomy, and calls attention to the dangers of clamping and cutting structures *en masse* without first making a careful dissection and exposure.

WILLIAM J. PICKETT, M.D.

Peterman, M. G.: Cholecystitis and Its Complications. *Surg., Gynec. & Obst.*, 1923, xxxvi, 522.

From the thorough review of the literature on experimental cholecystitis which is given in this article the following conclusions are drawn:

1. The intravenous injection of organisms in sufficient numbers is always followed by the appearance of the organisms in the bile. They are probably carried to the liver in the blood stream, excreted in the bile, and borne by this medium into the gall-bladder. At the same time they may be carried into the wall of the gall-bladder by the blood stream and lymphatics.

2. The intravenous injection of virulent organisms in sufficient numbers produces a cholecystitis in a high percentage of cases.

3. The organisms may be demonstrated in the bile one-half to two minutes after intravenous injection, and may be found in the gall-bladder after the blood has become sterile.

4. The simple injection of even large numbers of organisms into the lumen of a normal gall-bladder does not usually produce a cholecystitis.

5. The injection of virulent organisms into the lumen of a gall-bladder in sufficient numbers after ligation of the cystic duct and vessels regularly produces a cholecystitis.

6. Although cholecystitis may be due to a hæmatogenous infection, it is not infrequently lymphogenous in origin.

7. Cholecystitis is constantly accompanied by hepatitis. The character of the lesion in the liver is determined to a certain extent by the origin and course of the disease in the gall-bladder.

On the basis of the foregoing conclusions the following problems were investigated: (1) the passage of organisms into the bile of the gall-bladder after injections into the portal and systemic veins, as influenced by ligation of the cystic duct and vessels; (2) the occurrence of organisms within the wall of the gall-bladder at a distance from the mucosa soon after portal vein injections, their descent in the bile having been prevented by ligation of the cystic duct and vessels; and (3) a study of the complications of cholecystitis produced experimentally.

An extensive series of experiments on dogs and rabbits and a clinical study of 130 patients with disease of the gall-bladder are reported. The following conclusions were drawn from this work:

Any experimental method by which virulent organisms are carried through the blood stream directly to the gall-bladder is followed, in the majority of cases, by the development of a cholecystitis. The importance of the lymphatic route in the pathogenesis, not only of cholecystitis, but also of its complications, such as pancreatitis, hepatitis, and inflammation of the common duct, is emphasized. It is possible that in the majority of cases the cholecystitis is produced secondarily to hepatitis by lymphatic extension.

Palmer, D. W., and McKim, G. F.: Gall-Stones Associated with Kidney Stones. *Cincinnati J. M.*, 1923, iv, 102.

The authors report the case of a woman, aged 54, who had suffered with attacks of pain in the left side for three or four years. This pain was often so severe as to require hypodermics. Soreness was present constantly. The acute pain came on without warning, and was of a stabbing and boring nature. It began in the renal region and radiated downward toward the bladder. At times it was relieved by the drinking of a large amount of hot water. Twenty-two years ago the patient had passed gravel and blood in the urine.

Food intake did not appear to influence the pain, although occasionally there was more or less gas which caused bloating and belching. Complaint was made of some distress in the region of the liver, but there was no severe pain on the right side and no jaundice. Chronic constipation had been present for years. The patient's maximum weight was 125 lbs. At the time of examination it was 92 lbs.

Physical examination revealed some tenderness in the gall-bladder region and considerable tenderness and muscular rigidity in the left renal area. Urinalysis disclosed a trace of albumin, no casts, and a few red cells. X-ray examination showed two opaque shadows immediately to the right of the intervertebral discs between the first and second lumbar vertebrae, and a fairly large irregular opaque shadow on the left side about $1\frac{1}{2}$ to 2 in. from the side of the third lumbar vertebra. A diagnosis of stone in the left kidney and probable gall-stones was made.

In pyelograms the right renal pelvis appeared normal but the right ureter was kinked at the level of the sacro-iliac joint and the kidney was low. Immediately about the right kidney were two opacities which, from their position, suggested gall-stones. The opacity in the left kidney was apparently a stone in the pelvis.

A stone was removed from the pelvis of the left kidney by pyelolithotomy, and a cholecystectomy was done ten days later. The gall-bladder also contained stones.

This case is of interest because of the extreme rarity of the pathological combination, the absence of infection in the urological tract, and the absence of symptoms in the misplaced right kidney.

C. F. ANDREWS, M.D.

Abell, I.: Papilloma and Adenoma of the Gall-Bladder. *Ann. Surg.*, 1923, lxxvii, 276.

Benign tumors of the gall-bladder, notably papilloma and adenoma, are not so rare as was formerly believed. Such a tumor was found once in every twenty-three and one-half cases of cholecystectomy in the Mayo series and once in every thirty-six cases in the author's series. Papillomata occur usually in mucosa which is the site of chronic irritation. In the gall-bladder, both papilloma and adenoma may occur with or without stone formation. The clinical syndrome is that of chronic cholecystitis plus a tumor.

Of 288 gall-bladders subjected to routine microscopic examination eight presented benign tumors, five adenomata, and three papillary adenomata. In seven of the cases gall-stones were present. The author reports a case in which the growth removed at the first operation was believed to be malignant. Three years later the patient was again operated upon for obstruction in the common duct. At this time the gall-bladder had disappeared and the common duct was greatly distended by tumor tissue which proved to be a non-malignant papillary adenoma.

H. W. FINK, M.D.

Brocq, P., and Binet, L.: The Pathogenesis of Hæmorrhagic Pancreatitis (*Pathogénie de la pancréatite hémorragique*). *Presse méd.*, Par., 1923, xxxi, 219.

In experiments on dogs the authors found that simple ligation of the principal pancreatic duct is not sufficient to cause hæmorrhagic pancreatitis, but that if the ligation is supplemented by the intracanalicular injection of certain fluids, hæmorrhagic pancreatitis develops in from twenty-four to forty-eight hours. Solutions of soda, formaline, chloride of zinc, bile, and intestinal juice will produce this result. The authors have studied also the effect of bacteria, toxins, and leucocytes exerted directly or through a change in the reaction of the bile and intestinal fluids.

The experiments showed conclusively that both bile and intestinal secretions increase the activity of pancreatic secretion. Bile is known to act on lipase, one of the pancreatic ferments, causing the splitting of fats and setting up steato-necrosis. Pure intestinal juice, enterokinase, acts directly upon the pancreatic ferment trypsin. One of the conditions essential for the production of hæmorrhagic pancreatitis is the activation of the pancreatic ferments by an exogenous factor. The authors show that this factor is usually the bile or intestinal secretion. The mechanism is as follows:

Two primary lesions are necessary, viz., a hæmatoma and steato-necrosis. Trypsin activated by the exogenous factor in the interior of the pancreatic canals which, unlike the intestine, are not adapted to such activation, digests the walls of the canals and injures the vessels, causing hæmorrhage and necrosis of the pancreas. The steato-necrosis is the result of the splitting of fats by lipase (activated probably by bile) with the formation of soaps.

Clinically it has been frequently demonstrated that there is usually a reflux of bile due to pressure in the biliary ducts or spasm of the sphincter of Oddi, or that intestinal juices reach the pancreas because of duodenal stasis due to a mesenteric cord, vomiting, or intestinal spasm.

In the surgical treatment removal of the hæmatoma and the necrotic strips of pancreas must be supplemented by an operation to discover and remove the primary cause. A careful exploration of the bile ducts, stomach, duodenum, and jejunum is necessary.

W. A. BRENNAN.

Barling, G.: An Address on Pancreatitis and Its Association with Cholecystitis and Gall-Stones. *Brit. M. J.*, 1923, i, 705.

Barling briefly reviews the anatomy of the gall-bladder, bile ducts, and pancreas, emphasizing the fact that the lower portion of the choledochus and the ampulla are commonly surrounded by the head of the pancreas. He believes that in most cases of pancreatitis the dominating factor is infection primary in the biliary passages. If, when the parts are removed at autopsy, the ends of the duodenum are ligatured and the bowel is filled with colored fluid, it

is impossible to squeeze fluids into the ducts by forcible compression. It is true, however, that the injection of sterile bile or other fluids into the pancreatic ducts may cause pancreatitis. Opie's view that the impaction of a small calculus in the ampulla of Vater may give rise to pancreatitis by shunting the bile flow into the pancreatic ducts is not borne out by the author's experience because in four cases in which a stone was removed from the ampulla there was no evidence of pancreatitis at any time.

It would appear that infection plays the chief rôle, whether it arises in the gall-bladder and descends along the bile ducts or, according to Deaver's view, is lymphatic in origin. As bearing on the induction of acute pancreatitis two cases are cited in which a round worm had entered the pancreatic duct from the duodenum and caused an acute hæmorrhagic pancreatitis by completely plugging the duct. In these cases infection associated with stasis of pancreatic secretion occasioned the clinical picture of the disease. Infection of the biliary passages begins in the gall-bladder and may be excreted through the liver. It is most obstinate even when the common duct is drained and the gall-bladder removed.

Acute pancreatitis is a surgical emergency attended with a rather high mortality. This disease should be borne in mind whenever an obese patient with a history suggestive of gall-stones is suddenly seized with severe epigastric pain associated with shock, a subnormal temperature, vomiting, great prostration, tenderness in the mid-epigastrium, pain referred to the back and dorsal spine, rapid pulse, and occasionally, cyanosis. Glycosuria is inconstant. The diastatic index of the urine (Loewi's test) early in the onset is usually high, and the author regards this test of considerable help. As the islets of Langerhans tend to escape destruction, the outlook for patients recovering from acute pancreatitis is usually good, even though a large portion of the pancreas may be destroyed. The author cites one case caused by a calculus in the duct of Wirsung. All of the glandular tissue of the pancreas was destroyed and ultimately replaced by fat, and eventually a carcinoma developed in the organ at the site of irritation from the stone. The islets of Langerhans escaped destruction, and on only one occasion was there a transient glycosuria.

In all of the cases of subacute pancreatitis seen by the author gall-stones were present. The majority of these patients were more seriously ill than those suffering from gall-stone colic alone. It was not always easy to differentiate between infectious pancreatitis and stone in the common duct. Fat necrosis also was present in every case. In the majority, some free chocolate-brown fluid with a curious glistening sheen was found in the peritoneal cavity. The treatment consisted in drainage of the common duct with or without cholecystectomy. The pancreas was not incised in any case.

In the author's cases of chronic pancreatitis the condition was usually limited to the head of the pan-

reas, especially the zone surrounding the choledochus. Here again the disease was associated with calculi in the gall-bladder and common duct. The clinical picture is difficult to differentiate from that of carcinoma of the head of the pancreas. The author emphasizes the importance of remembering the possibility of the presence of calculi in the pancreatic duct in cases presenting a palpable swelling of the head of the gland.

Barling is convinced of the great value of recording surgical errors. In the case of a 60-year-old patient deeply jaundiced and with a distended gall-bladder and a palpable pancreas, the diagnosis of carcinoma of the pancreas was made. On account of the history of attacks of colicky pain, an exploratory laparotomy was advised. At the operation the gall-bladder was found distended and the ducts and gall-bladder were free from calculi but a massive nodular swelling was discovered in the head of the pancreas. This was regarded as almost certainly malignant. The patient died. At autopsy a small calculus was found 1 cm. from the ampulla in the center of the pancreas. The author believes that an exploratory incision of the head of the pancreas would have revealed the presence of the stone, but great respect should be entertained for the possibility of the subsequent escape of pancreatic secretion and the danger of the occurrence of hæmorrhage from the pancreaticoduodenal arteries.

In conclusion Barling states that in acute catarrhal jaundice in young persons the icterus is probably due directly to the inflammation and swelling of the head of the pancreas compressing the choledochus.

JOHN W. NUZUM, M.D.

Massagia, A. C.: The Physiopathology of the Spleen. *J.-Lancet*, 1923, xliii, 181.

The author attempts to answer the following three questions:

1. Does the spleen belong to the group of endocrin glands producing an internal secretion?
2. Under certain conditions is the spleen the primary cause of certain diseases such as splenic anemia?
3. Is the spleen a true immunizing organ?

The many important investigations to discover the internal secretion of the spleen have not yet successfully solved the problem.

The relation of the spleen to the various diseases in which this organ is a prominent clinical feature is that of a primary cause. The fact that in some cases of hæmolytic jaundice, removal of the spleen is followed by cure may be explained by the supposition that the spleen elaborates some hormone which acts upon the hæmatopoietic activity of the bone marrow or develops a lysin which destroys the red cells.

The clinical and anatomic-pathological observations and experimentation show that in several diseases caused by protozoa (malaria, trypanosomiasis, syphilis, infantile kala-azar) the spleen has very little immunizing power.

MORRIS H. KAHN, M.D.

Neumann, P.: Psychic Disturbances After Splenectomy in Cases of Pernicious Anæmia (Psychische Störungen nach Milzexstirpation bei Anæmia perniciosa). *Klin. Wchnschr.*, 1922, i, 2429.

Case 1. The patient was a 42-year-old woman. The erythrocyte count was 56,000. The day after splenectomy the blood examination showed 90,000 erythrocytes, 20,000 leucocytes, and 20 per cent hæmoglobin. The subsequent course was characterized by increasing irritability, vomiting, refusal of food, and an anxious expression. In spite of continued improvement in the blood picture (after three weeks the erythrocytes numbered 3,760,000 and the hæmoglobin equalled 42 per cent), the disorientation as to time and place became worse, and on the fifty-first day after splenectomy the patient died in profound stupor.

Case 2. The patient was a man 48 years of age. The blood examination showed erythrocytes, 2,280,000; leucocytes, 7,700; and hæmoglobin, 42 per cent. The day after splenectomy (Rumpel), the erythrocytes numbered 3,190,000, the leucocytes numbered 32,000, the hæmoglobin equalled 45 per cent, and the patient was in a peculiar stuporous condition with hallucinations from time to time. In the course of a week the symptoms receded, the erythrocytes decreased to 2,300,000, and the hæmoglobin decreased to 30 per cent.

The author is of the opinion that the psychoses were due to the loss of the spleen. As the formation of antitoxins by the spleen ceases and the toxins circulate in the blood in increased amounts (the useless erythrocytes also are no longer destroyed), a brain intoxication results. In the first case the liver failed to take over the function of the spleen, and in the second, it assumed this function late.

WOHLGEMUTH (Z).

MISCELLANEOUS

Hodges, F. M.: Subdiaphragmatic Abscess. *J. Am. M. Ass.*, 1923, lxxx, 1055.

In the author's series there were nine cases. The abscess was on the right side in seven and on the left in two. In three cases the abscess followed an appendectomy. A gunshot wound, a perinephritic abscess, resection of the cæcum for carcinoma, a perforated duodenal ulcer, a perforated gastric ulcer, and multiple liver abscesses were the preceding factors in one case each. Four of the patients recovered, four died, and one is still under observation.

In only one case was a definite diagnosis made prior to the roentgen-ray examination. The evidence furnished by the roentgen ray is due almost entirely to changes in the position and contour of the diaphragm unless, in addition to a change of contour, there is an air pocket or collection of gas beneath the diaphragm. The diaphragm is most always elevated, but is lower in the cases of extraperitoneal abscess than the others. Its dome is accentuated, and its excursions are limited. In seven of the author's

cases empyema was either suspected or diagnosed prior to the use of the roentgen rays. Promiscuous needling is probably never justified until every other method of diagnosis has been exhausted. The author reports two cases briefly. His conclusions are as follows:

1. The occurrence of subdiaphragmatic abscess is still sufficiently frequent, especially in post-operative cases, to be of marked clinical importance.
2. Early treatment usually leads to a cure, while late diagnosis means serious complications or death.
3. A history of recent abdominal operation or infection followed by an unexplained increase in the pulse rate and the temperature makes necessary a careful elimination of subdiaphragmatic abscess.
4. The roentgen ray is a very important diagnostic aid, and will almost invariably give definite information.
5. In any acute infection in the upper abdomen an elevated and rigid diaphragm should suggest a subdiaphragmatic abscess.
6. A diaphragm which is normal in position, contour, and motility usually eliminates the possibility of an abscess just beneath.
7. Promiscuous needling is never indicated as in this way the pleural cavity may be infected.

E. C. ROBISHEK, M.D.

Hutchison, R.: The Chronic Abdomen. *Brit. M. J.*, 1923, i, 667.

"Chronic abdomen" is usually found in unmarried or childless married women of the "comfortable" classes.

The symptoms are variable, usually including constipation, flatulence, a feeling of general weakness, and "exhaustion." The history is a chain of repeated operations and visits to various cures recited in most minute detail.

The findings consist of visceroptosis, muco-membranous colitis, and a morbid psychological state.

The most important point in the treatment is to catch the patient before she starts on the rounds of surgery. Then comes the "fattening cure," followed by efficient abdominal support and attention to the bowels. The morbid mental state is best cared for by something which will occupy the mind.

WILLIAM E. SHACKLETON, M.D.

Nather, K.: The Preperitoneal or Retroperitoneal Route to the Subphrenic Abscess as the Typical Operation (Der prae- oder retro-peritoneale Weg zum subphrenischen Abscess als typische Operation). *Arch. f. klin. Chir.*, 1922, cxxii, 24.

The author first gives a detailed description of the subphrenic region. Peritoneal folds divide this region into several parts. On the basis of anatomical specimens Nather distinguishes a right upper anterior and posterior, a right lower, and a left upper and lower, anterior and posterior part. In the majority of cases pus will be found in more than one of these spaces.

Nather describes the pathologic anatomy of the various abscesses in detail. He includes among subphrenic abscesses those pus collections often described as retroperitoneal phlegmons. As sites of origin of subphrenic abscesses are to be considered, first, the appendix, then the stomach and duodenum, then the liver and bile ducts, and more rarely the pancreas, kidneys, and other abdominal organs. For some kinds of subphrenic abscesses the triangular figure of dullness described by Barnard is characteristic.

With regard to the operative treatment the author states that it is generally agreed that abscesses pointing toward the abdominal cavity should be opened from this cavity. Abscesses growing toward the thorax are often opened transpleurally, but Clairmont opens these abscesses also by the preperitoneal or retroperitoneal routes. A 10-cm. incision parallel with the costal margin is made down to the peritoneum in front, the finger inserted to the abscess through the oedematous preperitoneal tissue, and at this point the peritoneum is opened. In the retroperitoneal approach an incision is made on the twelfth rib almost to the spinal process, the twelfth rib is resected, the muscles are freed from the renal fascia, blunt hooks are inserted upward to protect the pleural gap, the abscess is approached by blunt dissection, and the subphrenic space then punctured.

If normal peritoneum is encountered in either of these two routes an abscess can be excluded with certainty.

ROST (Z).

Andrews, C. F.: Primary Retroperitoneal Sarcoma: A Report of Twenty-Eight Cases. *Surg., Gynec. & Obst.*, 1923, xxxvi, 480.

Primary retroperitoneal sarcomata originate behind the peritoneum in the areolar or adipose tissue, in lymph glands, and occasionally in the vertebræ. Their origin is independent of any organ, such as the kidney or adrenal. They are to be distinguished from secondary retroperitoneal sarcomata, which usually originate in the testicle or ovary.

The literature reviewed by the author contains the reports of 108 cases. To these, Andrews adds thirty-four cases observed at the Mayo Clinic, making a total of 142 proved cases. The largest tumor on record weighed 34 lbs. and was removed by Bull.

The ages of the patients in the Mayo Clinic series ranged from 2½ to 62 years. There were twenty-three males and five females. In only one case were multiple tumors found. The growths appear with almost equal frequency on both sides of the abdomen.

The symptoms are insidious in onset: indefinite abdominal pains, which at times are colic-like, nausea, vomiting, and gaseous distention. Pain in

the lumbar region and leg is a common complaint. Half of the patients had normal bowel movements, 7 per cent had diarrhoea, and 28 per cent had constipation. One had alternate attacks of diarrhoea and constipation. If oedema is present, it usually begins at the ankle and extends upward. Occasionally there is urinary frequency, dysuria, or hæmaturia. Jaundice may be caused by pressure on the common duct. Loss of weight and strength are very constant findings. There is slight fever at times, and a moderate secondary anaemia. The average duration of symptoms until the time of examination was eight months.

The roentgen ray aids in the diagnosis by ruling out gastro-intestinal masses, and in conjunction with the cystoscope, in eliminating genito-urinary tumors. The sarcoma is usually deeply placed, may be mobile or immobile, firm or cystic, smooth or irregular, tender to the touch or painless. The most characteristic finding is the location of the colon, which rests in a groove on the anterior surface of the tumor. The differential diagnosis may be extremely difficult, if not impossible.

Metastasis occurred in 33 per cent of the cases being most common in the liver, lungs, and lymph glands, but found also in the spleen, kidney, skin, omentum, muscle, pleura, heart, bone, spinal cord, dura, adrenal, and mesentery.

The most common type of sarcoma is the small round-cell or lymphosarcoma. This also is the most malignant. Other types are the spindle-cell, fibrosarcoma, mixed-cell, fibromyxoma, myxosarcoma, myxo-osteochondro-sarcoma, and giant-cell sarcoma. Such tumors may become cystic because of hæmorrhagic, mucoid, or purulent degeneration.

The results of treatment of retroperitoneal sarcoma have been most unsatisfactory. Potassium iodide has been given internally, but without results. In some cases Coley's serum seems to be palliative. Surgery has been the treatment of choice for years, but it is too often a forlorn hope. Twenty of twenty-seven tumors were inoperable; seven were removed as completely as possible, but in five cases the tumor recurred, and one patient died the day after the operation.

The combination of roentgen ray and radium occasionally gives excellent results. Several patients are now undergoing this treatment at the Clinic. In some cases the mass has entirely disappeared and the patient has gained weight and strength and is able to carry on his work. It is too early to claim permanent cures, but even if this great improvement is only temporary, it is well worth while and the procedure seems to achieve more than any previous methods of treatment. It is also of diagnostic value. A sarcoma will shrink rapidly in the course of two weeks' treatment, while if the mass is not a sarcoma, no harm has been done.

GYNECOLOGY

UTERUS

Petersen, A. J.: Mixed Tumors of the Uterus. *J. Lab. & Clin. Med.*, 1923, viii, 369.

Mixed tumors of the uterus contain a variety of mesoblastic tissues such as smooth and striated muscle, fibrous connective tissue, fat, bone, cartilage, endothelial tissue, and certain undifferentiated tissues derived from the mesoderm. Wilms' monograph published in 1900 contains a review of the mixed tumors of the uterus reported in the literature up to that time and explains their origin by displacement of embryonic mesoblastic tissue rests along the course of the wolffian duct.

Since Wilms' monograph many other mixed tumors of the uterus have been reported. A summary of fifty of these demonstrates that twenty-seven occurred in the fundus of the uterus and the others in the cervix. Thirty-two contained cartilage; four, bone; fourteen, smooth muscle; eighteen, striated muscle; five, fat; two, endothelium; three, carcinoma; and almost all, sarcoma tissue.

Probably the most characteristic feature of these tumors is their histologic structure, that is, their content in a variety of mesoblastic tissues. Almost all of the mixed tumors reported are regarded malignant, although benign tumors are recorded (Perlstein). The malignancy is manifested by a local recurrence after removal rather than by the appearance of remote metastases. The metastases, while infrequent and late, usually do not contain heterogeneous tissues, and occasionally contain tissues not found in the primary tumor. Twenty-eight per cent of the reports of mixed tumors reviewed mention metastases, most of which were confined to the abdomen and pelvis. Tumors of the fundus seem to infiltrate the pelvic tissues later than those of the cervix. Mixed tumors of the uterus have been reported for ages ranging from 2 years to 75 years, but 50 per cent have occurred in women over 50 years of age. Uterine activity seems to have no relationship, as mixed tumors have been found in nulliparous women as often as in multiparous women. Clinically, they are not easily differentiated from other malignant tumors of the uterus.

The diagnosis depends finally upon the histologic examination of the tumor tissue, although the presence of cartilage or other characteristic tissue in masses large enough for recognition on macroscopic examination permits a tentative diagnosis at least. The prognosis after removal is unfavorable as a rule, and the duration of life after the appearance of symptoms is usually from one and one-half to two years. One patient is reported by Peuch and Massabuan (see Perlstein) to have lived six years after operation.

Briefly the salient features of two tumors reported in this article were as follows:

The first tumor was found in the body of a uterus surgically removed from an unmarried woman aged 60 years. The clinical diagnosis was malignant fibromyoma. The growth was 8 cm. in diameter. The lining of the uterus covering it contained irregular polypi and in the tumor large masses of tissue were recognized even macroscopically as cartilage. Microscopic preparations contained hyalin cartilage, trabeculae of bone, smooth muscle, alveoli of round and spindle-shaped cells, and fibrous tissue. In the sections studied, about 2 per cent of the tissue was bone, 35 per cent was hyalin cartilage, 35 per cent was smooth muscle, 30 per cent was white fibrous connective tissue, and 1 per cent was alveoli of round and spindle cells. The patient died from recurrence of the tumor in the pelvis three months after the operation and one year after the appearance of symptoms.

The second tumor was diagnosed clinically a fibromyoma. The patient was an unmarried woman 54 years of age. The uterus was removed completely. Microscopically this tumor contained large masses of fatty areolar tissue separated by bands of fibrous tissue in which there were small groups of cartilage cells and narrow bands of smooth muscle cells. About 1 per cent of the tissue was cartilage and smooth muscle fibers, 5 per cent fibrous tissue, and 94 per cent fatty areolar tissue. The patient is living and well two years after the operation and six years after the appearance of symptoms.

C. H. DAVIS, M.D.

Hartmann, H.: Fundal Hysterectomy (*L'hystérectomie fundique*). *Gynéc. et obst.*, 1922, vi, 420.

Under the title "fundal hysterectomy" Lecène and Gaudart d'Allaines have recently described the ablation of the fundus of the uterus and of both tubes with conservation of one ovary or at least a substantial fragment of one ovary. No originality is claimed for the idea. As far back as 1899 Zweifel demonstrated that the conservation of an ovary and a considerable portion of the uterine mucosa is sufficient to assure the persistence of the menstrual function. The technique recommended by Lecène is briefly as follows:

After proper hæmostasis the diseased ovary and both tubes are liberated by dissection, whereupon the uterine arteries are ligated just below the plane of the uterine section. This plane, while considerably higher than that of the usual supravaginal hysterectomy, is low enough to include all that portion of the uterus which ordinarily shows the greatest evidence of disease, i.e., the mucosa of the fundus, the uterine horns, and the interstitial portion of the

tubes. A circular cone-shaped incision removes the body of the uterus with all its attachments, leaving a segment of the uterus extending at least 3 cm. above the isthmus. Despite the fact that the round ligaments are cut, there is no danger of retroversion of the stump after it has been covered with the loose peritoneum lying between it and the bladder, the so-called retrovesical peritoneum.

The functional results of this operation are very good. Of seventeen patients traced, thirteen had complete freedom from trouble and no menstrual irregularity. In three cases the results were only fair as one patient became very fat and two had occasional hot flashes. Certainly the results are better than when only one ovary is conserved and the entire uterus is removed.

ROSCOE JEPSON, M.D.

Flothow, M. W.: Chronic Endocervicitis. *Nebraska State M. J.*, 1923, viii, 132.

Chronic endocervicitis is the most common pathologic entity among gynecologic disorders and is second to none in its potential menace to all of the pelvic structures. It seems to be definitely certain that the corporeal endometrium is infected with relative infrequency. In adults, endocervicitis is due usually to gonorrhœa, puerperal sepsis, or trauma caused by cauterization, dilation, curettage, or birth injuries.

The pathology is that of erosion, round-cell infiltration, and miliary abscesses about the glands and connective tissues. Grossly there may be simple erosion, eversion, condyloma, papillary erosion, ulceration, mucous polypi, cystic degeneration, cervical stenosis, or carcinoma of the cervix.

Depending on the pathological course, the intensity of the symptoms will vary from a mild leucorrhœa to a complete functional invalidism. The bacteriological examination shows the gonococcus or some other pus-producing organism.

The treatment necessitates the removal of all infected tissue in the cervix. The author believes this is best accomplished by the removal of the entire endocervical mucosa by Sturmdorf's technique or by the use of radium as advocated by Curtis.

H. W. FINK, M.D.

Davis, L.: Carcinoma of the Cervical Stump: Report of Eight Cases. *Boston M. & S. J.*, 1923, clxxxviii, 304.

After mention of the fact that myomata and carcinoma are often associated in the uterus and reference to the frequency of cancer in the cervical stump, the author reviews the 123 cases of cancer which were admitted to the Massachusetts General Hospital between January 1, 1917, and January 1, 1922.

In eight of these cases the cancer developed in the cervical stump after supravaginal hysterectomy for fibroids. The interval following the operation was twenty-four years in one, fifteen years in one, five years in one, two years in three, and less than a

year in two. In the three cases in which the interval was five or more years the growth was probably a new development, but in the other five it was probably a co-existent condition not recognized or insufficiently treated. In four cases the previous operation was done elsewhere.

In all cases of fibroid in which hysterectomy is contemplated the cervix should be very carefully investigated and the uterus curetted before operation. If there is any suspicion of malignancy, total hysterectomy should be done. The epitome of the eight cases is appended. ROY E. CHRISTIE, M.D.

Eden, T. W., and Goodwin, A.: Two Cases of Cancer of the Cervix Treated by Radium Before Operation. *Proc. Roy. Soc. Med., Lond.*, 1923, xvi, Sect. Obst. & Gynec., 32.

Case 1. The patient was a multipara 53 years of age who had an extensive friable growth on the cervix which extended for 2 cm. down the posterior wall of the vagina. Signs of malignancy had been noted for three months. A sharp spoon was used to form a cavity in the cervical mass and 200 mgm. of radium bromide were left in place for twenty-four hours. One month later digital examination and inspection through a speculum revealed no trace of the growth. Wertheim's hysterectomy was then performed and followed by a normal convalescence.

Macroscopically, the peritoneal surface of the uterus was smooth, and the posterior vaginal wall presented a healing surface. The endocervix was occupied by a fungating granular growth spreading upward toward the body of the uterus and downward toward the vaginal surface. Microscopically, the vaginal portion of the cervix and the posterior vaginal cuff showed a healing granulating surface with no malignant cells. Near the internal os the cells of the endometrium showed definite malignant changes. The ovaries presented senile fibrotic changes.

Case 2. The patient was a multipara aged 47 years who had a large irregular friable growth of the cervix which practically filled the upper part of the vaginal canal. For five months previous to the examination there had been a blood-stained vaginal discharge. The fundus contained a single fibroid. Scrapings from the cervix showed a columnar-cell papillary cancer of the cervix. One hundred and sixty milligrams of radium bromide were left in the excavated cervix for twenty-four hours. Fifteen days later the cervix and vagina showed no trace of the growth. Wertheim's hysterectomy was then performed.

Macroscopic examination showed a fibroma in the posterior wall of the uterus and two polypoid projections in the endometrium. The cervix was hypertrophied and tough, and presented several hard whitish areas. The ovaries were tough and fibrous.

Microscopically, the uterine wall and polyp showed polypoid endometritis, the tough cervical area showed a columnar-cell adenocarcinoma undergoing hyaline degeneration, and the upper part of

the vagina presented an extensive round-cell infiltration.

Pre-operative radium treatment given before operation greatly simplifies the operation by removing most of the proliferating growth and, by causing degeneration of the cancer cells, lessens the danger of cancer implantation. As much of the proliferative mass as possible should be removed with a sharp spoon in order that the radium may be brought more directly in contact with every part of the growth.

V. E. DUDMAN, M.D.

Reel, P. J., and Charlton, P. H.: Sarcoma of the Uterus. *Ann. Surg.*, 1923, lxxvii, 476.

The authors emphasize the importance of a very careful microscopic study of all suspicious areas found in uteri removed on the clinical diagnosis of multiple fibroids. Of 290 uteri thus examined they found eleven to be sarcomatous. Nine of these presented grossly the picture of definite multiple fibroids and in the majority the gross section revealed an area of apparent sarcomatous change enclosed within the fibroid masses. It was not uncommon to find a multinodular uterus with but one nodule showing sarcomatous transformation. This would tend to strengthen the contention that a sarcoma may arise in a fibroid.

H. W. FINK, M.D.

ADNEXAL AND PERI-UTERINE CONDITIONS

Spencer, H. R.: Ten Cases of Ovariectomy in Women Over 70 Years of Age. *Brit. M. J.*, 1923, i, 582.

The ten cases reported occurred in a series of 625 cases of ovarian tumor operated upon. The age of the ten patients ranged from 70 to 82 years. The oldest woman ever subjected to an ovariectomy was 94 years of age.

All of the tumors in the ten cases reported were benign. Eight were multilocular cysts. All of the women recovered from the operation. Ether seems to be a safe anæsthetic in the cases of old persons. Infiltration and spinal anæsthesia seem to be generally unsuitable.

H. W. FINK, M.D.

EXTERNAL GENITALIA

Mondor, H., and Huet, P.: Cysts of the Labia Minora (Les kystes des petites lèvres). *Gynéc. et obst.*, 1923, vii, 26.

The authors review the literature of cysts of the labia minora, discuss the different types of cysts from the anatomical and histological standpoints, and report a case with the microscopic findings.

Sebaceous and epidermal cysts may be attributed to an inclusion or occlusion process. The mucous cysts may be divided into two groups, those in which the cavity is lined with non-ciliated epithelium, and those in which the cavity is lined with ciliated epithelium. The literature reports thirty-eight cases of this type but in seven the pathologic report is insufficient. In the remaining thirty-one the cysts were

studied as to contents, lining epithelium, and outer coat. In two, there was no lining epithelium, the stromal coat being in direct contact with the fluid contents of the tumor. Most of the cysts contained a viscid, colorless, slight yellow or brownish fluid. Cholesterol crystals were frequently found. The fluid was aseptic except in a few which had been infected secondarily. In some cases non-striated muscle was found. The outer coat merged with the structure of the labia minora.

The authors believe that these cysts are derived from the wolffian duct rather than the muellerian duct as is held by certain other investigators, but state that, so far, no one has proved that they are so derived. They reject the hypothesis that they may be derived from bartholinian aberrants or from the mucous glands which Kollmann and Schauta have found in the labia of the newborn.

S. DI PALMA, M.D.

MISCELLANEOUS

Herzog, G. K.: Gonorrhœa in Women. *California State J. M.*, 1923, xxi, 113.

The cases of gonorrhœa in women seen in both private and clinical practice are usually the advanced cases with involvement of the glands of Bartholin, Skene's glands, the cervix, and the tubes. To effect a cure, the glands of Bartholin must always be excised, Skene's glands opened and cauterized with the thermocautery, the urethra injected with a strong silver-nitrate solution, the cervix dilated, and the cautery applied liberally.

Frequently the physician fails to diagnose gonorrhœa because he does not find the gonococcus. The fault lies usually with him rather than with the laboratory technician. Usually it is necessary to milk the urethra with considerable pressure. The pus should be expressed also from Skene's glands and the glands of Bartholin. The cervix should be very carefully wiped off and sponged with sterile water half a dozen times, and the discharge obtained by massage collected on a slide and examined. Several slides should be made on different days before the diagnosis is definitely established.

Leucorrhœa and a urethral discharge are very often of gonorrhœal origin, and one can safely say that an abscess of the glands of Bartholin is always gonorrhœal.

Peri-urethral abscess in the female following gonorrhœa is a troublesome condition, particularly when it is so close to the internal sphincter that urine may be mixed with the pus. These cases may be treated with silver-nitrate applications and massage. Massage is the greatest help, but in some cases surgery becomes necessary.

In conclusion, Herzog states that the radical treatment of gonorrhœal vulvovaginitis, namely, the excision of the Bartholin glands and the direct application of the cautery to the urethra and cervix, has given most gratifying results.

LOUIS GROSS, M.D.

Weibel, W.: The Treatment of Peritoneal and Genital Tuberculosis in the Female with the X-Ray (Die Behandlung der Peritonealund Genital-tuberculose des Weibes mit Roentgenstrahlen). *Wien. klin. Wchnschr.*, 1922, xxxv, 933.

The author states that in cases of tuberculous peritonitis treated with the X-ray (the efficiency of which he attributes to stimulation of connective-tissue proliferation) he obtains good results in 82 per cent and the mortality is 18 per cent. The best results are obtained in tuberculosis of the adnexa. A tuberculous ulcer on the anterior wall of the vagina was also treated in this way successfully. Usually a permanent amenorrhœa is produced, which is very desirable in cases of severe menorrhagia and justified even in the absence of menorrhagia by the deleterious influence of menstruation on the local condition. In cases of exudative peritonitis the raying should be done only after the ascitic fluid has been removed.

GRASHEY (Z).

Vogt, E.: The Healing of the Wounds of Gynecological Operations Following Previous Roentgen Treatment (Wie heilen gynäkologische Operationswunden nach vorausgegangener Roentgenbestrahlung?) *Med. Klin.*, 1922, xviii, 1491.

On the basis of twenty-eight laparotomies which had been preceded by roentgen treatment, Vogt attempted to answer the following questions: (1) Is operation made more difficult by previous roentgen treatment? (2) What is the effect on the healing of the wounds in the abdominal wall and within the pelvis? (3) Do late injuries from the roentgen treatment show in the region of the scars?

He found that previous use of the roentgen ray does not make gynecological operations more difficult to any marked degree, and does not exert any effect on the healing of the wounds. The third question Vogt was unable to answer as the time since the operation was too short when this article was written.

NAEGELI (Z).

OBSTETRICS

PREGNANCY AND ITS COMPLICATIONS

Vignes, H., and Hermet, P.: **Sedimentation of the Red Blood Corpuscles and Gestation** (*Sédimentation des globules rouges et gestation*). *Rev. franç. de gynéc. et d'obst.*, 1923, xviii, 42.

From their experiments the authors draw the following conclusions:

1. The reaction of Fahræus is observed not only in the course of gestation, but also in anæmia caused by repeated loss of blood, in the development of tumors, and in acute infections with pus formation. It is not of value in the early diagnosis of pregnancy.
2. The disappearance of the reaction in the postpartum and postabortion period varies with the elapsed time.
3. The theory that the reaction is due to some substance in the red blood cells was not confirmed.
4. The addition *in vitro* of distilled water or physiological serum did not accelerate the reaction. Therefore the theory that the reaction is due to a decrease in the specific gravity of the plasma was not confirmed.
5. The reaction appears to be due to a chemical modification of the plasma, particularly in the relation of the colloids, an increase in the fibrinogen and the serum globulin in relation to the serum-albumin.

S. DI PALMA, M.D.

Williams, P. F.: **Glycosuria Test for Pregnancy**. *Am. J. Obst. & Gynec.*, 1923, xxv, 369.

The proposed methods were tested on the pregnant and aborting women in the gynecological service of Girvin.

Ten women were tested by the original method proposed by Frank and Nothman. This series included six aborting women and four women pregnant earlier than four months. The blood sugar did not reach 0.16 per cent in any case. All showed a glycosuria after from thirty to forty-five minutes. In a few cases the percentage of sugar in the urine was higher than the values given by Frank and Nothman.

Eight women were then tested by the modification proposed by Roubitschek. Six of these, who were aborting, and two in early pregnancy were given glucose and epinephrin. In only one case was a positive response obtained and in not one did the blood sugar rise above 0.15 per cent at the end of forty-five minutes after the administration of the test materials.

Fourteen women were tested by the phlorizin method. Eight were normally pregnant, four were aborting, and two had tubal pregnancies. In but two cases, both those of pregnant women, was a positive response obtained. The blood sugar showed no rise during the test.

These discordant findings were rather puzzling. Controls were therefore carried out on non-pregnant women. A positive response was obtained in only one, a 53-year-old woman who had had an operation for prolapse and showed a slight glycosuria following the administration of 100 gm. of glucose. In no other case was a glycosuria obtained with any of the methods.

E. L. CORNELL, M.D.

Wright, H. W.: **Psychoses of Pregnancy and the Puerperal State**. *California State J. M.*, 1923, xxi, 170.

The insanity of pregnancy and the puerperium cannot be considered a psychiatric entity. While any type of psychosis may occur during pregnancy or the puerperium, the vast majority of cases fall into the groups of manic-depressive insanity, dementia præcox, and toxic or infective syndromes. The first two occur frequently without fever or other demonstrable evidence of physical abnormality.

In the diagnosis it is desirable to know the personality of the patient for often this is of aid in the prognosis. In dementia præcox the prognosis is poor. In the delirious type the prognosis is excellent. In the purely manic-depressive type of case recovery is usually complete after about five months.

H. W. FINK, M.D.

Hannah, C. R.: **The Value of Abdominal Measurements in Recognizing the Size and Maturity of the Fetus**. *Texas State J. M.*, 1923, xviii, 543.

The factors contributing to the oversized fetus should be eliminated whenever possible.

The large fetus has but little, if any, advantage over the fetus of 6 or 7 lbs. The cells of the large, fat baby are water-logged and usually its weight loss is from 1 to 1½ lbs., while a medium-sized baby, a baby weighing less than 8 lbs., loses probably 8 to 12 oz. The medium-sized baby has greater resistance and does not so often have the fever of inanition or starvation in the first few days of post-uterine life.

The length of the fetus before birth may be determined by Ahlfeld's rule. One point of the pelvimeter is placed in the genital fold near the clitoris, the soft tissue being pushed up until the point of the pelvimeter rests near the upper border of the symphysis, and the other tip is placed at the upper pole of the fundus. The reading in centimeters is then taken, 2 cm. are deducted for the thickness of the tissues, and the remainder is multiplied by 2.

To obtain the occipito-frontal diameter, Perret has taught us to place one tip of the pelvimeter over the occiput and the other over the frontal, and take the reading without any deduction for tissue. The subtraction of from 1½ to 2½ cm. from this reading gives the biparietal diameter. If the occipito-frontal

is from 10 to 11 cm., subtract 1.5 cm.; if 11.25, deduct 2 cm.; if 11.5, deduct 2.25 cm.; if 12 cm. or more, deduct 2.5 cm.

Spiegelburg's figures show that a uterus filled with the average-size fetus will measure 34.5 cm. from the upper border of the symphysis to the fundus. McDonald has demonstrated that a fundus 35 cm. high from the upper border of the symphysis will probably have a fetus weighing 7 lbs., 5 oz. For every centimeter above 35 he adds 200 gm., and for each centimeter below that amount he deducts 200 gm.

It is a recognized fact that toxæmia of late pregnancy can be treated successfully only by prevention, and that pre-eclamptic symptoms may manifest themselves in spite of all diligence and active supervision. If they do not yield to active treatment, the obstetrician may inform himself, with the use of the rules described, as to the period of maturity of the fetus. This same principle is applicable to cases of contracted pelvis, heart lesions, and constitutional diseases; it is a modern principle based upon reasonable facts.

C. H. DAVIS, M.D.

Gilbert, T. C.: Interstitial Pregnancy. *Texas State J. M.*, 1923, xviii, 546.

The author reports a case of interstitial pregnancy which presented the classical fundamental syndrome of the ordinary ectopic variety of pregnancy and, in addition, certain differential points classically characteristic of the interstitial type. On bimanual examination the fundus of the uterus was found elevated on the side of the pregnant horn, this being due to the characteristic tendency of interstitial gestation to develop upward, thus transforming the uterus into a cone with its point upward and outward.

In ordinary tubal pregnancies we are more apt to find the tumors posterior and well down in the cul-de-sac of Douglas than upward and anterior, as in this case. Pregnancy in the rudimentary horn, or angular pregnancy, may be confused with interstitial pregnancy, but in the first-named condition the symptoms are more apt to conform to those of a normal pregnancy.

The duration of gestation is of some differential value and should always be taken into consideration. The average time of rupture in the classical tubal type of pregnancy is the fourth week, while in the interstitial type it is the eighth week. In the latter it may be even the seventh month. Thus it is obvious that as a rule the interstitial type gives more time for study and observation.

C. H. DAVIS, M.D.

Streeter, G. L.: Subcutaneous Implantation of the Human Ovum. *J. Am. M. Ass.*, 1923, lxxx, 989.

The case reported appears to be unique, but the fact meriting chief attention is that the human chorion is capable of developing to the size of a hen's egg in the environment furnished by the superficial fascia of the abdomen.

When first seen by Lenz of Gloversville, N. Y., the patient, a woman aged 25 years, who had been married for four years and had had one abortion and no children, presented a mass the size of a cherry in the lower abdominal region at the upper end of the scar of a previous operation. A provisional diagnosis of wound hernia was made. Two weeks later the swelling had doubled in size, and on account of its rapid growth an exploratory examination was decided upon. This was performed by Lenz four weeks after the patient first came to him; by that time the enlargement had reached the size of a hen's egg.

Operation disclosed, just beneath the skin, embedded in the superficial fascia, a relatively thin-walled and partially transparent cyst, which on removal proved to be an intact chorionic sac and on being opened was found to contain a well-formed embryo.

The chorionic sac was certainly growing up to the time of the operation, and its histologic condition was compatible with still further growth, although the prominence of the so-called Hofbauer cells was the sign of an approaching arrest of development. It thus follows that under these circumstances the growth of the sac tends to continue longer than that of the embryo. This conforms with the author's laboratory experience with abortion material in general—the chorion is proportionately further developed than the embryo rudiment. It is to be remembered that the fascia in the region mentioned is not so profusely vascularized as the tissues surrounding the tube and uterus, and this might have been a factor in the arrest of development. We can only speculate on what would have happened if the mass had not been removed. It is not probable that it would have grown much larger. Reasoning on the basis of tubal specimens, further hæmorrhages, although not serious ones, might have occurred and the entire structure might have been slowly absorbed. On the other hand, there is the remote possibility that the villi might have given origin to a malignant chorio-epithelioma. The findings in this case are very suggestive to the experimental embryologist.

C. H. DAVIS, M.D.

Lasseur, P., and Vermelin, H.: The Serum Diagnosis of Syphilis in the Pregnant or Parturient Woman (*Le séro-diagnostic de la syphilis chez la femme enceinte ou récemment accouchée*). *Gynéc. et obst.*, 1923, vii, 130.

Despite the controversy to which it has given rise, the serum diagnosis of syphilis has definitely proved its value. Struck by the remarkable similarity of findings of the clinical and laboratory examinations in thousands of cases of syphilis which have been either suspected or recognized with certainty, the authors studied the Bordet-Wassermann reaction in pregnant and parturient women. In a large number of cases in the obstetrical clinic the serum diagnosis has confirmed a doubtful diagnosis, and in a few cases has revealed the condition when it was not suspected.

1. *Definite cases of syphilis.* In twenty-nine cases in which syphilis was recognized the results of the test were the same as those observed in other positive cases. Twenty-three of these cases were those of young women who had had no anti-syphilis treatment. Six cases in which the test was negative were cases of old lesions or recent lesions which had rapidly regressed under treatment.

2. *Placental hypertrophy.* Under this term are classed those cases in which the only sign indicating syphilis is hypertrophy of the placenta. Only one case showed a positive reaction. A negative reaction does not exclude the possibility of syphilis; this can be done only by repeated careful examinations of the infant during the first months.

In 57.5 per cent of the authors' entire series of cases with a positive reaction the feto-placental relation was 1:4.5 or over, and in only 32 per cent was it under 1:4.5. These findings are therefore very similar to those of Levy-Solal, with whom the authors agree that before it is concluded on the basis of a negative serum reaction that hypertrophy of the placenta is not of syphilitic origin it is necessary to prove the absence of syphilis in the parent or the grandparents.

3. *Macerated fetus; no recognized syphilis.* In these cases the mother does not admit any former specific infection and does not exhibit any indications of a recent or old lesion. The fetus is characteristic: the maceration is of long standing, the stomach is voluminous (seventeen cases), and the liver occupies the greater part of the abdominal cavity. In the cases in which it was possible to make a direct examination the treponema was always found in the liver. The placenta is distinctly pathological; the feto-placental relation is raised, and besides the changes due to the maceration, the washed and sausage-like appearance of the placenta and its friable consistency are characteristic of syphilis.

Two negative reactions confirmed the laboratory findings. The death of the ovum may be attributed to endometritis. A case deserving particular mention was that of a woman of 34 years who had had two successive normal gestations. One of the children had succumbed to convulsions. The third gestation was complicated by hydramnios, and near term a macerated fetus was expelled. The liver of the fetus showed no hypertrophy or macroscopic alteration. Despite the negative reaction and the absence of clinical signs, syphilis cannot be positively excluded.

4. *Death of successive infants.* In such cases the serum diagnosis is of great value. Undoubtedly the clinical examination alone is occasionally sufficient to discover syphilis, and in many doubtful cases a positive reaction will confirm suggestive clinical signs. In the authors' series the findings of the physical examination were confirmed by a positive reaction in eleven cases. In six of twelve cases in which the reaction was negative a premature macerated fetus was expelled. In these cases a change in the body

fluids incident to gestation may have been responsible for the negative reaction.

5. *Hydramnios and a large ovum.* Of nine cases of hydramnios, a positive reaction occurred in only one. The very heavy placenta showed the characteristic changes of syphilis. In one case the placenta was very large despite a negative reaction and it seemed probable that syphilis was the cause.

6. *Abortions.* In all of twelve cases of abortion the laboratory findings agreed with the clinical findings, being negative in cases of accidental abortion due chiefly to endometritis, and positive in cases in which a history of syphilis was given and in young women in whom the abortion was the first sign of acquired syphilis.

7. *Early fetal death.* Six cases of premature labor followed by early death of the fetus showed a positive reaction indicating the presence of syphilis which might easily have passed unrecognized.

8. *Pernicious anæmia.* In the two cases of pernicious anæmia observed the serum reaction was negative.

9. *Fetal malformities.* Syphilis may give rise to dystrophies leading to congenital malformation. Frequently it is derived from the grandparents and for this reason it should not cause surprise if the mother shows a negative reaction.

In the authors' entire series of 148 cases there were sixty-three positive reactions and eighty-five negative. All of the positive reactions were in accord with the clinical findings.

Those who have experimented on the sensibility of sera in prepared animals have found that a negative reaction does not exclude the disease with certainty. In explanation of this we know that antibodies appear as the indicators of a change in the body fluids caused by infection. Taking 100 as a standard of value for untreated secondary syphilis, the intensity of modification is 5-10 in tertiary syphilis and 0-1.5 in old treated syphilis. These values differ in different persons and in the same person in the course of time and under the influence of specific treatment.

In many cases the laboratory test is insufficient to differentiate between normal and abnormal sera because, when the changes in the body fluids are slight, our methods are not sufficiently delicate to reveal them. It seems probable that a chronic infection is similar in its action to a drug. At first the body reacts vigorously but if the drug be continuously repeated the reaction ceases entirely or diminishes markedly. In the case of infection the evolutionary changes possible to the micro-organism and the possibility of a change in its antigen-forming properties occurring within the host must be considered. In fact, negative reactions may be due to absence or diminution of serum modifications occurring when the body becomes accustomed to the bacterium or to biological variations in the latter. Changes in the serum are complex; some may mask and some may neutralize (inhibitory substance of Calmette).

ROSCOE JEPSON, M.D.

Moore, J. E.: Studies on the Influence of Pregnancy in Syphilis: The Course of Syphilitic Infection in Pregnant Women. *Bull. Johns Hopkins Hosp.*, Balt., 1923, xxxiv, 89.

The validity of Colles' law and of the paternal transmission of syphilis is still unsettled. The purpose of this article is to show, from a correlation of the clinical and experimental evidence in the literature, that in all probability neither of these hypotheses is valid. The clinical data supplied by a study of 178 pregnant women with positive blood Wassermann reactions and twenty-two non-pregnant mothers of syphilitic children supports this belief.

Forty-four of these women (22 per cent) had definite lesions of early or late syphilis at the time of their admission to the hospital. In 72 per cent of the remainder syphilis was proved or strongly suggested by the history, physical examination, response to treatment, or subsequent course, or a combination of these. In only 21.5 per cent of the 200 cases, therefore, were all evidences of syphilis (except a positive blood Wassermann reaction) lacking.

This study demonstrated also that the factor of pregnancy may cause striking deviations from the usual course of syphilitic infection. If impregnation and infection approximately coincide, or if infection occurs during the course of pregnancy, the woman may develop the usual early manifestations of syphilis but these will be much milder than if she had been infected independently of pregnancy. Approximately one-half of the women so infected reacted toward infection in this manner.

A slightly larger proportion infected with syphilis at about the time of impregnation failed to develop any of the usual early lesions of syphilis. Under these circumstances it is fair to assume that pregnancy is the factor which suppresses the lesions of the disease.

In a few women (three of the 200 studied), the response to infection acquired at the beginning of, or during, pregnancy was markedly altered. The usual time relations between primary and secondary syphilis were much prolonged. On the other hand, the interval between early syphilis and tertiarism may be much shortened, and grave lesions of a tertiary type may appear early in the course of the disease.

The protection against the early lesions of syphilis afforded by pregnancy may persist over a long period of years; and possibly for a lifetime. In a few instances a spontaneous cure of syphilis seems to have been the ultimate result. In the women of the series who developed late syphilis, the viscera, and particularly the cardio-vascular system, were especially prone to involvement, whereas tertiary lesions of the skin and bones and neurosyphilis, either clinical or asymptomatic, were rare.

In thirty-three of the 200 patients the blood Wassermann reaction gave anomalous results. In 10 per cent of the pregnant women with secondary syphilis the reaction was negative. In the women with latent syphilis it vacillated markedly without treatment, and in a number of cases a negative or

positive reaction during pregnancy changed spontaneously to the reverse after delivery. The factors possibly responsible for the condition are discussed briefly.

The nature of the mechanism by which pregnancy causes these alterations in the course of syphilitic infection is unknown.
C. H. DAVIS, M.D.

Szymanowicz, J.: Ovarian Cysts and Pregnancy: Results in Thirty-Five Cases Operated upon During Pregnancy (Kystes de l'ovaire et gestation: résultats de 35 cas opérés pendant la gestation). *Gynéc. et obst.*, 1922, vi, 405.

The only rational procedure to follow in the presence of an ovarian cyst diagnosed during pregnancy is immediate surgical interference. Abortion occurred in 8.5 per cent of the cases reviewed but in one instance it was in progress before the laparotomy and in another the mother had advanced pulmonary tuberculosis.

The author's experience leads him to the conclusion that the fetus may be conserved with less difficulty after the fourth month of gestation. Adhesions, more or less friable, torsion of the pedicle, and incarceration of the tumor mass were encountered at operation. An operative route through the vagina has been rejected because of the difficulty of obtaining sufficient exposure and the danger of introducing infection.
LOYAL E. DAVIS, M.D.

Dietrich, H. A.: Ileus During Pregnancy (Ileus während der Schwangerschaft). *Zentralbl. f. Gynaek.*, 1922, xlv, 2052.

Ileus caused by pregnancy is rare when the uterus is in normal position, but cases in which pregnancy increases obstruction are more common. The contention made by some writers that in the latter the pregnancy should be interrupted in order to determine whether the ileus will then be overcome is rejected. In the author's opinion, operative treatment should be given for the ileus and great care should be taken in the handling of the uterus in order not to interrupt the pregnancy.

Dietrich reports a case in which a portion of intestine 1.5 meters long was resected because of an invagination. The patient recovered and a healthy child was born at term. Only four cases of invagination of the intestine during pregnancy have been reported up to the present time. In the author's case there was volvulus of the invaginated intestine. This was attributed to the pregnancy. The diagnosis may be difficult as the early symptoms may be readily ascribed to the pregnancy.

VORSCHUETZ (Z).

Rosenfield, H. H., and Schneiders, E. F.: Improved Phenoltetrachlorphthalein Test for Liver Function in Pregnancy and Its Toxæmias. *J. Am. M. Ass.*, 1923, lxxx, 743.

The phenoltetrachlorphthalein test has been used to measure liver function both in normal and in toxic cases of pregnancy.

Normal cases of pregnancy show a curve coinciding with that of normal non-pregnant cases and suggesting that the so-called "liver of pregnancy" with its various physiological changes has no actual impairment of function. Toxæmias of pregnancy show a definite relation between the degree of liver impairment as measured by this test and the degree of toxicity as evidenced by the clinical picture.

The results obtained in several cases suggest that this test is a more accurate index of existing toxicity than the variable clinical symptoms, and that it may be possible by means of it to anticipate the clinical picture in forming an opinion as to the degree of toxicity present at a given time. Toxæmias of pregnancy, including eclampsia, show definite liver impairment, and subsequent to relief from toxic symptoms there is a return of the liver function to the normal limits.

The authors believe that this test gives a quantitative index of functional capacity of the liver, and that in the toxæmias of pregnancy it will aid greatly as an index of treatment and assist in determining the time at which therapeutic abortion or induction of labor should be performed when these measures become necessary.

C. H. DAVIS, M.D.

Luikart, R.: Phenobarbital Sodium (Luminal Sodium) Treatment for Hyperemesis Gravidarum. *Am. J. Obst. & Gynec.*, 1923, xxv, 410.

Phenobarbital sodium, gr. 1 to 2, is administered hypodermically. The pure or powdered form only is used as the milk sugar in the tablet triturates will often cause abscesses. In the majority of cases its administration every four hours will suffice, but it may be given at shorter intervals for three or four doses if relief is not prompt. If the case is seen early, regular feedings are continued—six a day. Great care must be taken in the general management. There should be examinations of the urine, a record of the total intake and output of fluids, daily blood-pressure determinations, and pulse, temperature, and respiration records.

If the patient is starved and there has been considerable loss of weight and strength, 2 oz. of infants' food, invalid formula, is given every hour, and carbonated water, or tap water if preferred, midway between feedings. The bowels are evacuated by cathartics and are made to move daily with the help of enemata if necessary. Fluids, Fischer's or saline solution, are given by rectum as needed to supply water and alkali reserve. The patient is not allowed to receive visitors and her room is kept darkened. When she asks for food, frequent feedings in small quantities are given. The amount and kind of food are determined by the manner in which it is retained. When regular meals are resumed a hypodermic dose of phenobarbital sodium is administered fifteen to twenty minutes before the meal. As food and water are taken and retained, the mental and physical condition improves rapidly. If the case is obstinate, it may be necessary to continue treatment until the end of the third month of pregnancy.

The sensation caused by phenobarbital sodium is described as a "fluid feeding" of the entire body.

Occasionally the patient sleeps during the day and lies awake at night. A hypodermic of 7 gr. of caffeine sodium benzoate administered with the phenobarbital sodium will help to overcome this and will not interfere with the quieting effect on the nausea of the phenobarbital sodium. A cup of coffee serves the purpose somewhat less satisfactorily. The only ill effect of phenobarbital sodium observed has been urticaria. This is relieved by sponge baths of 1 per cent lysol solution.

E. L. CORNELL, M.D.

Runnels, S. C.: Eclampsia. *J. Am. Inst. Homœop.*, 1923, xv, 902.

The author reports nineteen cases of eclampsia without a death which were treated by a modification of the Tweedy, Stroganov, and cæsarean methods during the last three years.

In the Tweedy treatment the entire bowel is emptied by a thorough cleansing. Tweedy begins by washing both the stomach and bowel by repeated washings until the water returns clear. After this procedure some water is left in both the stomach and the rectum and 2 oz. of castor oil and a drop of croton oil are left in the stomach. Three hours later this washing-out is repeated until the water again returns clear. The enema is repeated every three hours as long as the eclampsia continues or as long as foreign matter is obtained.

The intestine is then kept empty except for the replacement of fluids, which are forced per rectum. No food at all is given, and, when the eclampsia ceases, the resumption of feeding is begun very carefully as the first food often re-establishes the convulsions. Milk is the first food allowed and is given in small and experimental doses. Absolute abstinence from proteins is essential during the toxæmia. Even the patient's own saliva, if swallowed, is enough to cause a convulsion. Therefore the patient is kept on her side to drain the saliva.

The convulsions are controlled by the older method of Stroganov who gives no thought to the possible etiology of the eclampsia but as the result of empiricism discovered that if the convulsions are subdued the toxæmia will often pass. Morphine is the mainstay in this subjugation and is given in heroic doses. A half grain as an initial dose is rarely excessive although it is considered better to give two quarter-grain doses at half-hour intervals. A quarter-grain dose may be repeated as often as needed to quiet the patient until as much as 2 gr. has been given in twenty-four hours.

An eclamptic patient is very immune to the toxic effect of morphine and the drug may be pushed until the respirations are below ten per minute. If the morphine must be supplemented, chloral per rectum or an anæsthetic may be employed. Chloral has long been used in eclampsia, but it is the opinion of the author that it is best omitted because of its irritating effect on the kidney. In the choice of an anæsthetic, chloroform must be eliminated in physi-

ological dose because of the similarity of its pathogenic action upon the kidneys and the liver to that of eclampsia.

In both the Tweedy and the Stroganov treatments no attempt is made to force delivery.

Veratrum viride in physiological dose, the "internal bleeding" of the older writers, has long been used. Although a few authorities still advocate it, men of large experience have come to the conclusion that it is of no advantage. Theoretically it would seem to be contra-indicated since it would be adding a drug toxæmia to the toxæmia already present.

Rapid delivery is too often undertaken in cases of eclampsia under circumstances which render adequate work impossible.

A cæsarean section should not be done if the sterility has been broken or the woman has been in labor more than twenty-four hours. Versions and high-forceps operations should not be done unless the cervix is properly dilated and adequate assistance is available. It is the opinion of the author that as experience with the eliminative treatment increases, the number of operative cases will be greatly reduced.

C. H. DAVIS, M.D.

Favreau, M., and Querrioux, F.: Pregnancy in Cases of Nephrectomy for Bacillosis (*Gestation et néphrectomie pour bacillose*). *Presse méd.*, Par., 1923, xxxi, 146.

Many investigations reported in the literature show that after a nephrectomy for tuberculosis marriage may be permitted at the end of three years if the remaining kidney functions well and if, during this period, there was no sign of a lesion of the remaining kidney or other organ. In the authors' opinion, pregnancy may be normal in such cases much sooner after the operation. During the pregnancy frequent urinalyses and examinations for the tubercle bacillus should be made. The diet should be restricted in order to spare the remaining kidney as much as possible. If complications such as severe nephritis develop, abortion will be necessary.

In the authors' opinion nephrectomy is indicated in every case of renal tuberculosis, and especially if the condition is found during pregnancy. In the majority of cases in which nephrectomy was done in the course of pregnancy the evolution to term was without incident.

W. A. BRENNAN.

Portes, L.: The Pathogenesis and Treatment of Apoplexy of the Placenta (*Pathogénie et traitement de l'apoplexie utéro-placentaire*). *Gynéc. et obst.*, 1923, vii, 56.

On the basis of a study made of seventy-three cases of apoplexy of the placenta taken from the general literature, in which observations were made either in the course of an intervention or at autopsy, the author discusses in considerable detail the causes of the condition—mechanical, inflammatory, and toxic.

A history of external traumatism was given in only three cases, and in two of these there were

signs of toxæmia. Therefore external trauma is excluded as a common cause. Shortness of the umbilical cord, relative or absolute, was given as the cause in two cases, but Portes questions these reports. Torsion of the uterus as a cause is also excluded as it was disproved by experimental work on rabbits by Morse and was not present in any of the cases studied. Inflammation as an etiological factor is excluded by the absence of such reactions in the uterus.

Toxic causes were found clinically or anatomically in 91.3 per cent of the cases. From this fact the conclusion is drawn that, in the vast majority of cases, premature separation of the placenta and utero-placental apoplexy are due to a toxic condition.

The author discusses and attempts to explain the mechanism of infiltration of the uterine muscle with blood and of certain breaks in the peritoneum of the body of the uterus described by some writers as "external rupture of the uterus." The latter lesion, he says, occurs in 15 per cent of the cases of apoplexy of the placenta.

To explain the bloody infiltration Portes is inclined to regard as the most probable cause the action of hypertension on the walls of the arterioles and capillaries which are altered by toxæmia. Fissuring of the peritoneum he attributes to distention of the uterus by internal hæmorrhage and possibly a lack of elasticity of the uterine peritoneum due to œdema. He agrees with Wilson that the toxin is of placental origin.

In twelve cases in which delivery was accomplished by rapid dilatation of the cervix, both the mother and the child died. In the surgical treatment, vaginal cæsarean section was done three times. Three of the mothers and two of the children died, and the fate of the third child is unknown. An abdominal cæsarean section was performed twenty times with four maternal and fourteen fetal deaths. An abdominal cæsarean section followed by hysterectomy was done twenty-two times with ten maternal and twenty fetal deaths; the fate of two children is unknown. Hysterectomy without cæsarean section was performed five times with three maternal and four fetal deaths; the fate of the other child was undetermined.

In the author's opinion the treatment should be surgical intervention with abdominal cæsarean section as the procedure of choice, and hysterectomy when the uterus shows gross anatomical lesions. He believes that when there are renal or hepatic lesions a local or regional anæsthetic should be employed.

S. DI PALMA, M.D.

LABOR AND ITS COMPLICATIONS

Van Hoosen, B.: A Safe and Practical Method of Administering Scopolamine-Morphine Anæsthesia in Obstetrics. *N. Orleans M. & S. J.*, 1923, lxxv, 531.

The method described is one of fixed dosage and therefore requires no tests. The patient is placed

under the anæsthetic by $\frac{1}{8}$ gr. of morphine and $\frac{1}{100}$ gr. of scopolamine hydrobromate and two subsequent doses of $\frac{1}{100}$ gr. of scopolamine at one-half hour intervals. She is kept under the effect of the anæsthetic by the administration of $\frac{1}{100}$ gr. of scopolamine given every two hours until delivery.

In the management during delivery a Bierhalter leg holder is used and the patient's hands are secured so they cannot reach below the waistline. An additional dose of scopolamine may be given at delivery so that the interval at this time will not exceed one to one and one-half hours. For forceps delivery and minor repairs no further anæsthesia is necessary. For extensive repairs or for version, deep surgical anæsthesia is induced.

The patient is not allowed to receive visitors. She is given plenty of water but no food as food is not retained. If she becomes excited, the scopolamine is discontinued.

In 2,023 deliveries there were forty-eight stillbirths from various causes but none due to the anæsthetic. Of three maternal deaths, one was due to eclampsia, one to septic peritonitis, and one to influenza pneumonia. Of 1,604 deliveries, 727 were those of multiparæ and 877 those of primiparæ. Twenty-five multiparæ and 157 primiparæ were delivered with forceps. Postpartum hæmorrhage occurred in sixteen multiparæ and fourteen primiparæ, but in every case was easily controlled.

ROY E. CHRISTIE, M.D.

Gordon, C. A.: The Management of the Third Stage of Labor. *Am. J. Obst. & Gynec.*, 1923, xxv, 403.

The author has studied the third stage of labor in 1,600 cases. As soon as the child is born, a tell-tale tape tie is loosely placed upon the cord, at the vulva. The fetal end of the cord is not clamped, but is closely tied when pulsation stops. The abdominal coverings are then removed and the patient is carefully examined for the signs of placental separation. After a physiological period of inertia, the uterus rises above the umbilicus. It is not relaxed or soft, but firm in the upper segment. The lower uterine segment may be distended over the pubes, although this sign is not constant. A detached placenta half way through the upper segment into the lower or protruding through the lower uterine segment into the vagina may not distend the uterus. Descent or advance of the cord with its tape tie from 10 to 15 cm. is constant.

When these two signs are noted the patient is instructed to bear down. If there is diastasis of the rectal muscles, these muscles are held firmly together after the method of Baer and she is again instructed to bear down. If this is not effectual the placenta is expressed by placing one hand on the fundus of the uterus and pushing the uterus straight down the vaginal axis. If all these methods fail, the bladder is catheterized if necessary and the Credé method is employed, anæsthesia being induced if necessary.

The membranes are treated expectantly without torsion. Traction may be used only after partial descent of the membranes.

If the placenta is still retained, or if it has not yet separated, the cord is cut just within the vulva, the tell-tale tie being left in its place. Pituitrin is not given. The patient may then expel the placenta herself, or it may be expressed subsequently by the Credé method. Nothing further is done unless hæmorrhage occurs, when the Credé method is used under anæsthesia or, that failing, the placenta is removed manually.

It is obviously no more possible to conduct the third stage of labor by rule than the first stage.

In the series of 1,600 cases pieces of membrane were retained in four without any disturbance other than the pain incidental to their expulsion in a clot. There were nine cases of twin pregnancy with one placenta and five with two placentæ. In none of these was there placental retention or postpartum hæmorrhage.

The author gives his conclusions as follows:

1. The recognition of separation is of great importance.
 2. The frequent occurrence of speedy separation is responsible for the success of the Credé method.
 3. Indiscriminate use of the Credé method will cause the very end-results which that operation is designed to avoid.
 4. Students should be taught that the Credé method is for the pathologic third stage.
 5. Retention often occurs in the lower birth canal because of the recumbent posture of the patient and her inability to use her abdominal muscles which are then chiefly concerned in expulsion. The primitive sitting posture might be used in cases of delayed expulsion of the placenta.
 6. The placenta may be retained safely for many hours.
 7. The adherent placenta is rare. It causes no bleeding until partial separation occurs.
 8. The completely separated placenta causes no bleeding.
 9. The partially separated placenta always causes bleeding. This is the placenta which calls for manual removal.
 10. Manual removal has a high mortality, but a distinct indication—hæmorrhage. Delay is dangerous after hæmorrhage occurs.
- Detailed studies of the management of the third stage of labor are numerous in the literature. Gordon found nothing so practical or precise as Polak's study in 1915.

E. L. CORNELL, M.D.

Gaifami, P.: Transperitoneal Cæsarean Section of the Lower Uterine Segment in Fifty Cases (À propos de 50 cas d'opération césarienne trans-péritonéale sur le segment inférieur). *Rev. franç. de gynéc. et d'obst.*, 1923, xviii, 33.

The author does not describe his technique in this article as he has done so previously, but discusses his cases with regard to the value of the operation, the

strength of the uterine scar, and the limitations of the technique.

In three cases in which infection was surely present and in two cases in which it was suspected there were no deaths. In eleven cases in which a subsequent caesarean section was performed the scar of the previous operation was found to be solid. In one case in which the uterus was removed in the second caesarean section the scar of the first operation was found to be perfectly healed, the mucosa being smooth throughout and the only trace of the scar on the outer surface being the silk thread used in suturing. Microscopic examination also showed perfect healing.

The author advocates the use of his technique in all cases except those showing signs of excessive distention of the lower segment, particularly those in which a difficult extraction of the head is anticipated; cases of placenta prævia; and cases in which there are many adhesions due to previous caesarean sections.

S. DI PALMA, M.D.

Mowery, W. E.: Caesarean Section under Local Anæsthesia. *Med. Herald*, 1923, xlii, 111.

The author reports three caesarean sections performed under local anæsthesia. This method has the following advantages:

1. It is free from danger to the mother or the child.

2. There is no postoperative nausea or vomiting, and, as the abdominal muscles remain quiet, the mother is decidedly more comfortable.

3. Shock is prevented.

4. Acidosis, fatty degeneration, postoperative, pneumonia, and paralytic ileus are not produced or even approached. Therefore the patient's resistance is preserved and the effects of any infection which may have been introduced during or preceding the operation are greatly reduced.

5. There is no danger of producing cerebral hæmorrhage or emboli.

6. In complicated cases such as renal insufficiency with albumin, casts, and high blood pressure, profuse hæmorrhage, organic heart disease, chronic infection, and exophthalmic goiter, in which the patient's resistance is taxed to its capacity and inhalation anæsthesia is decidedly hazardous if not absolutely contra-indicated, local anæsthesia may be used with safety, the patient returning from the operating room without any perceptible change in her general condition.

The disadvantages are few. There may be slight pain while the uterus is being delivered, but not as much during the entire operation as is occasioned by one good labor pain. The time required is a trifle longer, but the patient's condition remains the same throughout the operation and time is not a factor as the entire operation seldom requires more than twenty-five or thirty minutes. Perhaps the most objectionable feature is the dread on the part of the patient or her relatives of an operation performed without narcosis.

C. H. DAVIS, M.D.

PUERPERIUM AND ITS COMPLICATIONS

Ssirotkin, A.: Concerning Milk Cysts: Galactoceles (Zur Kasuistik der Milkcysten: Galaktocele). *Moskow. M. J.*, 1922, ii, 34.

In the case of a 27-year-old woman a swelling the size of a walnut developed in the right breast after lactation four and one-half years previously and became larger during each subsequent lactation, while the secretion of milk diminished and finally ceased altogether. When the patient was seen by the author the right breast was as large as the head of a newborn child, but showed no scar and no retraction of the nipple. Indistinct fluctuation was noted. Exploratory puncture yielded thick milk. A cyst was then removed.

On pathological and anatomical examination it was found that the wall of the cyst was composed of connective tissue showing hyaline degeneration and an occasional rest of gland tissue; in addition there was a small fibro-adenoma in the cyst wall.

The author assumes that the same factor which led to the formation of the fibro-adenoma produced the cyst by causing degeneration of the walls of the duct. At the same time the surface of the walls of the ducts was increased, the increased secretion of milk being due to this increase, while the secretion of milk was rendered difficult.

VON HOLST (Z).

Roberts, C. S. L.: Acute Puerperal Inversion of the Uterus. *Brit. M. J.*, 1923, i, 557.

Two cases of acute puerperal inversion of the uterus are reported. The first was that of a II-para 21 years old. The first pregnancy had terminated in a miscarriage. The woman was healthy and had strong abdominal muscles. In the second labor the first and second stages were normal; the latter lasted two hours. Twenty-five minutes afterward, when the uterus was grasped to determine whether the placenta had separated, the fundus was apparently well contracted. The patient bore down and the placenta appeared at the vulva without gross hæmorrhage. The uterus then escaped from the nurse's grasp and the emerging placenta was followed by the completely inverted uterus with fully two-thirds of the placenta still firmly attached to it. The uterus was the size of a fetal head. Anti-shock treatment was at once instituted and the uterus surrounded with hot sterile towels, but the shock continued to become worse and seventy minutes later the patient was moribund with a faintly perceptible pulse. When the placenta was peeled from the uterus there was little bleeding and the uterus was easily replaced. Transfusion of 22 oz. of the husband's blood was followed by gradual improvement. Fourteen days later vaginal examination showed the uterus to be slightly bulky but otherwise normal in shape, consistency, mobility, and position.

The second case was that of a 22-year-old woman. This patient had had a previous forceps delivery followed by severe postpartum hæmorrhage. She got up on the tenth day and seemed well until the

sixteenth day, when during defæcation she felt her "womb drop." Examination showed a sloughing mass, the uterus, in the vagina. Manual replacement, which was difficult and consumed forty minutes, was followed by uneventful recovery.

H. W. FINK, M.D.

Bumm, E.: Serotherapy and Chemotherapy in Puerperal Infection (Ueber Sero- und Chemotherapie bei der puerperalen Wundinfektion). *Med. Klin.*, 1923, xix, 1.

In the field of wound infections proof of the efficacy of therapeutic procedures is particularly difficult to obtain. Comparisons between animals and man are of only limited value because, for example, man is extraordinarily susceptible to streptococci, while in animals these micro-organisms never cause similar diseases. In addition, the course of wound infection in man is extremely variable. If the turning point for the better coincides with the therapy, false conclusions are easily possible. The difficulty of judging is particularly great in puerperal fever, which runs its course in the depths of the body. Bumm found, for example, that cases of ascending gonorrhœa or retained lochia are often treated with streptococcus serum. There are enormous differences between local infection and progressing phlegmon.

The first step is to determine the type of organism which is causing the infection. The more numerous the cocci and chains in the lochia, the more probable a bacterial invasion of the living tissue. Repeated aerobic and anaerobic blood cultures will indicate the spread and prognosis of the infection. Unfortunately, knowledge of the virulence of the infection in certain cases is still very deficient and clinical experience shows that in wound infections this is of the greatest importance. The best method of determining the virulence is that of Ruge by which the growth of the streptococci in the blood of the patient is observed with the microscope.

The nature and virulence of the bacterium having been determined, the next step is an attempt to render the organisms in the wound harmless by means of local antiseptics. For approximately twenty years Bumm has been aware of the impossibility of local disinfection of the uterine cavity. He repeated the experiment again with rivanol and with ether, but in a few hours organisms were again demonstrable in the secretions. If staining solutions are used it can be seen on section of the uterus that even after

thorough irrigation many crypts and folds of the mucosa do not come into contact with the fluid. If a portion of infected mucous membrane is taken from a freshly extirpated septic uterus and placed for twenty minutes in a disinfectant, bacteria can still be grown from it. Moreover, the irrigation of a septic uterus is not a harmless procedure, as very often the first chill follows such treatment.

Another therapeutic method consists in the subcutaneous or intravenous injection of immune bodies or bactericidal chemical preparations. Serotherapy and chemotherapy have become discredited because too much has been expected of them and their aid is called in too late. It is essential that they be employed early while the infective process is still circumscribed. Serotherapy and chemotherapy work best as prophylactic measures. The practice at Bumm's clinic is as follows: (1) an intramuscular injection of 50 c.cm. of antistreptococcus serum, and (2) with the onset of chills, an intravenous injection of 50 to 100 c.cm. of a 1:1,000 solution of rivanol. Above all, the natural defense of the body is aided by the application of heat and the generous administration of alcohol.

In 85 per cent of the cases it was possible to localize the puerperal streptococcal infection. Under sero-chemotherapy the total mortality was only 6.9 per cent.

The significance of bacteria in the blood in puerperal infection is variable as the organisms are often forced into the blood stream by mechanical procedures applied to the uterine mucosa, and most of them are destroyed in the subsequent chills. Much more serious are the spontaneous eruptions of bacteria into the blood stream, but even these cases may be cured by injections of methylene blue. The therapeutic effect is indicated by the critical fall in the temperature, the disappearance of the organisms from the blood, and the loss of hæmolytic power of the streptococci. In all cases which have progressed to metastatic infections, serotherapy and chemotherapy are useless. Probably the streptococci are present in the purulent masses and tissues of the circulation and are therefore protected from the influence of any remedy. The situation is similar in septic phlegmon of the pelvic tissues.

All in all, it may be said that the curative effect of serotherapy and chemotherapy is confined to the initial stages of the infection, but that here it is distinctly evident. The first days of the disease are decisive.

SCHUBERT (Z).

GENITO-URINARY SURGERY

ADRENAL, KIDNEY, AND URETER

Speciale, F.: *A Contribution to the Study of Hypernephroma* (Contributo allo studio dell'ipernefroma). *Policlin.*, Rome, 1923, xxx, sez. prat., 207.

The author's case was that of a man aged 47 years. A diagnosis of hypernephroma was made. At operation the right kidney was found much deformed by a tumor involving its entire upper portion and the suprarenal capsule. Following removal of the kidney and tumor the patient recovered.

Histologic examination of the tumor showed that the reticular tissue, which was abundant, was constituted of more or less fine fibers surrounding and even penetrating the tubules.

The anatomic-pathologic and microscopic examinations confirmed the clinical diagnosis and led to the conclusion that the tumor originated from aberrant rests of the suprarenal capsule included in the kidney. This view was based on the subcapsular situation of the tumor, the diverse cellular type of the renal epithelium, and the fat content of the cellular elements. The histologic specimens were prepared by the Achucarro method as modified by Del Rio Hortega.

W. A. BRENNAN.

Rossi, F. G.: *Remarks on 206 Cases of Nephroptosis* (Observaciones en 206 casos de nefroptosis). *Rev. de med. y cirug. de la Habana*, 1923, xxviii, 1.

The author has observed 206 cases of nephroptosis in Cuba. Only one of the subjects was a negro; 174 were females and thirty-two were males. The ages of the females ranged from 11 to 69 years, and those of the males from 15 to 55 years. In many cases the condition was familial and hereditary.

In all the cases examined by the author pressure upon the kidney in bimanual palpation was painful, but Rossi is unable to affirm Lequeu's statement that the mobile kidney is painful when pressure is made upon it to reduce it into the lumbar cavity. This, he believes, is an excellent diagnostic sign differentiating between tumors and non-complicated nephroptosis. It is easy to replace the mobile kidney while mobilization of a tumor is difficult.

W. A. BRENNAN.

Nemenoff, M. J.: *Roentgenological Methods for the Recognition of Ptosis of the Kidney—Pneumoperitoneum* (Roentgenologische Methoden zur Erkennung der Nierenptose—Pneumoperitoneum). *Westnik Rentgenol. i Radiol.*, 1922, i, 377.

Changes in the position and form of the kidneys are usually not shown clearly in the ordinary roentgenogram. Better results are obtained with pyelography with the use of collargol. By this method it

is possible to determine from the position and form of the ureters whether a ptotic kidney (long, winding ureter) or a congenital dystopic kidney (short ureter with a straight course) is present.

The best results are undoubtedly obtained with pneumoperitoneum, as this procedure allows the accurate differentiation of all the organs from their surroundings, including the kidney. The technique employed by the author is as follows:

A dull needle fitted with a sharp stylet and a double-current stopcock is inserted through the skin of the abdominal wall to the left of the midline and two fingerbreadths below the umbilicus. The stylet is then removed and the remaining tissues are penetrated with the needle alone. The stopcock is first connected with a syringe containing physiological salt solution and at the moment the needle enters the abdominal cavity the fluid from the syringe is injected. If no obstruction is encountered, the stopcock is turned and connected with two bottles, one of which contains air and the other a solution of corrosive sublimate; by elevation of the second bottle, the air from the first bottle is forced into the abdominal cavity, the amount being indicated by the quantity of fluid entering the first bottle. Except for a slight emphysema of the skin, the author has never seen any complications associated with this technique. He therefore recommends the method as entirely harmless.

VON HOLST (Z).

Young, H. M.: *Suggestion for a Standard Technique in the Application of the Phenolsulphonephthalein Test in the Determination of the Relative Functional Capacity of the Two Kidneys*. *J. Missouri State M. Ass.*, 1923, xx, 117.

To be reliable, the functional test of the kidneys must consist in the simultaneous collection of the secretion of both kidneys over the same interval of time. The test should end as well as begin simultaneously on the two sides.

The author prevents ureteral leakage by using on the sound side the Garceau catheter which is conical. The urine then found in the bladder must come from the other side.

BENJAMIN F. ROLLER, M.D.

Hinman, F.: *Renal Counterbalance: An Experimental and Clinical Study with Reference to the Significance of Disuse Atrophy*. *J. Urol.*, 1923, ix, 289.

A study of the effect of increased work upon kidneys made by Hinman brought out many interesting facts. After ligation of the ureter in rats for periods of one to six hundred days or longer the

average total increase in hypertrophy was found to be 20 per cent of the normal. Hypertrophy is a relative term and the size the cell attains is dependent upon the strain to which it is subjected.

The article has a most important clinical significance. It points out the lack of a test to determine the renal reserve and the ability of the renal tissue to hypertrophy and, when surgical preservation of tissue is in point, the further determination of the probable action of competition and renal atrophy in the final counterbalance. The anatomical changes are gradual and progressive.

In the event of a two-stage operative procedure, the kidneys being treated at separate operations, the second operation must not be too long delayed. Repair on the side first operated upon may be so stimulating as to render the work of the unoperated and still inefficient side unnecessary. Delay will therefore lead to atrophy of disuse.

THOMAS F. FINEGAN, M.D.

Papin, E.: Lavage of the Kidney Pelvis (Les lavages du bassinot). *Arch. d. mal. d. reins et d. organes génitiaux-urinaires*, 1923, i, 280.

The effect of lavage of the kidney pelvis depends upon the condition of the pelvis and ureter, the technique, and the fluid employed. There are three types of pyelitis, viz., acute pyelitis, simple pyelitis, and hydropyonephrosis. To the first type only instillations are applicable. In the third condition lavage gives only palliation or has no effect at all. The best results are obtained in the second type.

For instillations, concentrated antiseptic solutions (especially silver nitrate 1:200 or stronger) are indicated. Although these are well tolerated by the pelvis, they cause considerable pain when they reach the bladder. This inconvenience can be overcome by filling the bladder with salt solution.

In giving lavage it is necessary to fill and empty the bladder several times. Silver nitrate in weak solution may be employed. Even weak solutions have a strong bactericidal power.

Permanganate of potash has a particular indication in gonococcal pyelitis.

Medicated oils and certain colloidal substances have the advantage that they remain in the pelvis a long time. The author has obtained the best results from the use of colloidal iodine which is remarkably well tolerated by the mucosa and has a high bactericidal power. The solution should be slightly heated before it is injected.

The frequency of lavage must of course depend on the severity of the condition, but as a rule two lavages per week will suffice, and in subacute conditions, one a week. The lavage should be continued until microscopic analysis of the urine demonstrates aseptis.

Lavage of the renal pelvis causes cessation of pain, sterilizes the pelvis, and decreases urinary retention. The first result is obtained rapidly. The last cannot be obtained in all cases. The inflammatory dilatation caused by pyelitis can be diminished or

even entirely overcome if the infection is recent, but in cases of mechanical dilatation prior to the infection, cases of infected hydronephrosis, lavage will not alter the size of the sac.

W. A. BRENNAN.

Caulk, J. R.: Megalo-Ureter: The Importance of the Uretero-Vesical Valve. *J. Urol.*, 1923, ix, 315.

The occurrence of an enormous dilatation of the ureter without any evidence of pathologic effect upon the renal pelvis or parenchyma is reported for the first time. The embryological causes are considered and the condition is compared to Hirschsprung's disease. Treatment by dilatation is ineffective but simple incision of the uretero-vesical orifice gives good results. In the female this can be done by means of a special scissors placed beside the cystoscope.

THOMAS F. FINEGAN, M.D.

BLADDER, URETHRA, AND PENIS

Kidd, F., and Turnbull, H. M.: Angiomyoma of the Urinary Bladder. *Surg., Gynec. & Obst.*, 1923, xxxvi, 467.

The authors report a case of angiomyoma of the bladder in a man 29 years of age. The only symptom was urinary obstruction followed by catheter cystitis. Cystoscopy and operation revealed a smooth pedunculated tumor about the size of a date and with the appearance of a ripe raspberry. Microscopically this proved to be an angiomyoma of polypoid papillomatous form. The conclusions drawn are:

1. Angioma or angiomyoma is probably the most rare type of tumor occurring in the urinary bladder.

2. If a diagnosis can be made at an early stage, operation may be successful and should lead to a permanent cure.

3. If the growth is not detected until a late stage, operation may be impossible and death may occur from hæmorrhage.

O. E. NADEAU, M.D.

Lower, W. E.: Disposition of the Ureters in Certain Abnormal Conditions of the Urinary Bladder. *J. Am. M. Ass.*, 1923, lxxx, 1200.

The author believes that transplantation of the ureters into the rectum and sigmoid is the best method of treating most abnormal conditions of the bladder, especially exstrophy. The method of transplantation which is associated with the lowest operative mortality and greatest ultimate comfort is transplantation into the sigmoid or rectum.

Regarding the time at which the transplantation should be done, the author believes that in the cases of children the operation should be deferred until the patient has reached the age at which he can be trained to control the anal sphincter and should then be done as soon as possible in order that the control of the anal sphincter for urine as well as for feces may be acquired most easily and completely and the child may mingle with his fellows and begin his schooling at an earlier age.

Preliminary to the operation the function of the kidneys is checked up by an examination of the blood and the use of dyes. For two days before the operation the bowels are cleansed, and on the day of operation a rectal douche is given. The patient is placed in the Trendelenburg position and the abdominal viscera are held out of the pelvis by gauze packing. The author uses the intraperitoneal method of approach and transplants the ureters into the bowel by the submucous implantation technique of Coffey. Two or three weeks after the transplantation of one ureter the other is similarly transplanted.

The author believes that an important part of the treatment is the use of a rectal tube following the transplantation until the rectum becomes adjusted to the presence of urine. The administration of saline rectal douches is also of importance.

The author's series of bilateral transplantation of the ureters into the large intestines includes sixteen cases, three of carcinoma and thirteen of ectrophy of the bladder. Although the sphincteric control varies, in no instance in this series has it failed completely, and nearly every patient is able to hold the urine for from three to four hours. One patient is able to hold it for eight hours.

HENRY L. SANFORD, M.D.

Côté, C. R., and Smith, G. G.: Chronic Urethritis in Women. *Boston M. & S. J.*, 1923, clxxxviii, 596.

Chronic urethritis in the female is characterized by frequency of urination and pain on voiding. The cause is probably an antecedent infection which has left definite pathologic changes. The treatment is, first, dilatation of the urethra to 30 F. and then the direct application of 20 per cent silver nitrate to the urethral mucosa through the urethroscope. A number of treatments are necessary.

ROY E. CHRISTIE, M.D.

MISCELLANEOUS

Brown, G. V. A., and Corbeille, C.: Observations with Comments on a Study of the Urinary Tract of Eighty Fetuses and Young Infants. *Am. J. Obst. & Gynec.*, 1923, v, 358.

It is a striking fact that in a study of eighty fetuses and young infants only twenty-five (31.25 per cent) were found entirely free from disease. While in 13.75 per cent only slight changes such as oedema and passive congestion were found, these also confirm the evidence that the kidney is a vulnerable and exceedingly responsive organ from its earliest stages of development. The material was not selected, all that was available being studied. The authors reach the following conclusions:

1. Evidence of chronicity becomes apparent at an early age, even in the early months of fetal life.
2. Blood-vessel involvement is not a constant accompaniment of luetic changes in early life.
3. Renal hæmorrhages, both primary and secondary, are not rare in fetuses and young infants.

4. Inflammatory changes in the fetal kidney may be either acute or chronic, primary or secondary, infectious or non-infectious (chemical).

5. Malignant kidney tumors of sarcomatous nature may be found during the very early months of life.

6. Renal calculus occurs in early life (prenatal and early postnatal).

7. The kidney forms urine months before the maturity of the fetus, and probably in considerable quantity. The fetus may develop a toxæmia from retention in its blood stream of kidney products, independent of the blood stream or kidney efficiency of the mother.

8. There is apparently a close relationship between the kidney and the brain and the adrenals.

E. L. CORNELL, M.D.

Dondero, A. P.: Causes of Error in the Roentgenological Diagnosis of Calculus of the Urinary Tract (Cause di errore nella diagnosi radiologica della calcolosi delle vie urinarie). *Policlin.*, Rome, 1923, xxx, sez. prat., 169.

Medical literature contains the reports of many cases in which a diagnosis of urinary calculi was made but no stones were found at operation. The causes of error may be in the abdomino-costal walls, the kidneys and ureters, or other parts of the abdominal cavity.

Dondero discusses these causes of error in detail. Those occurring in the abdomino-costal wall include cornified cutaneous warts, small fibrous tumors, calcified subcutaneous glands, calcifications in cicatrices, bone formation in laparotomy cicatrices, injected substances such as iodine, trichinosis, ossifying myositis, calcification of serous bursæ and of the dorsal muscles, calcification in cold abscesses, sesamoid bones of the obturator muscle tendons, and foreign bodies.

Conditions in the skeleton and ligaments causing error are calcification of the costal cartilages, false ribs, zones of condensation in the apices of the transverse processes, fragments of fractures of the transverse processes, exostoses of the iliac bone, and calcareous deposits in the ischiatic spine.

Causes of error occurring in the arteries and veins include calcification at the bifurcation of the aorta, calcification of the middle tunic of a large vessel, and calcification of the vasi deferenti (Dondero has observed a case of calcification of the internal and external iliac arteries).

In the kidneys and ureters causes of error in diagnosis include caseous renal tuberculosis, calculus degeneration of the suprarenal capsules, phleboliths in the renal veins, calcification of the ureter, non-calcified glands of normal consistency, and calcified glands.

Causes of error in other parts of the abdominal cavity include biliary calculi, calcification of a carcinoma of the head of the pancreas, extra-uterine pregnancy, calcified fibromyomata, calcification of the uterine vessels, calcareous deposits in the ova-

ries, dermoid cysts, calcifying cysts of the broad ligament, etc., opaque bodies in the digestive tract, calcified peritoneal and mesenteric glands, and calcification in the omentum.

In the diagnosis of vesical calculi errors may arise from foreign bodies in the vicinity of the bladder, intestinal calculi, calculi of the urethra and prostate, or a dermoid cyst of the ovary. It is known that 50 per cent of bladder calculi may be passed undetected by the X-ray because of their slight opacity.

W. A. BRENNAN.

Kretschmer, H. L.: Keratoderma Blennorrhagica.

J. Am. M. Ass., 1923, lxxx, 993.

Keratoderma is a very rare complication of gonorrhœa. It occurs as a rule in the male, and is characterized by three cardinal signs, viz., arthritis, urethritis, and hyperkeratosis. From the presence of these signs the diagnosis can be made readily.

The treatment should be directed toward cleaning up the focus of infection in the prostate gland and seminal vesicles by massage and irrigations or instillations. Arsenic in the form of neo-arsphenamin was used by Doble-Lees with good results.

Kretschmer gives a detailed report of a case which recently came under his observation.

E. C. ROBITSHEK, M.D.

Stern, D., and Rypins, H.: The "Local" Wassermann Reaction: A New Diagnostic Aid in Primary Syphilis. *Minnesota Med.*, 1923, vi, 167.

A positive diagnosis of syphilis in the primary stage of the disease is based on: (1) the history of exposure, with the time of occurrence and the duration of the lesion; (2) the appearance of the lesion and its association with satellite lymphadenitis or secondary eruption; (3) the Wassermann reaction of the blood serum; (4) the finding of the spirochæta pallida with the dark-field microscope; and (5) the "local" Wassermann reaction, with which this paper is especially concerned.

A positive dark-field examination is the most reliable aid in the diagnosis of primary chancre, and in the hand of experts is positive in about 75 per cent of cases.

This test is made by collecting 0.1 c.cm. of the serum from the suspicious lesion in capillary tubes. The lesion is sponged off with normal saline solution, dried, and squeezed. A small amount of blood will not interfere with the reaction. The collected serum is then diluted from 1 to 8, 1 to 16, and

1 to 24 when possible. The routine Wassermann test of the venereal division of the State Board of Health is performed.

In the authors' series there were forty-three cases of demonstrated primary syphilis, and five cases of non-luetic lesions. These may be divided into the following groups:

Group 1, twelve cases with positive blood-Wassermann reactions, positive dark fields, and positive "local" Wassermann reaction; Group 2, one case with a positive blood-Wassermann reaction, a negative dark-field examination, and a positive "local" Wassermann reaction; Group 3, twenty-nine cases with a negative blood reaction, a positive dark-field examination, and a positive "local" Wassermann reaction; Group 4, one case with a negative blood reaction, a negative dark-field examination, and a positive "local" Wassermann reaction; and Group 5, five non-syphilitic cases with a negative blood Wassermann, a negative dark-field examination, and a negative "local" Wassermann reaction. In the forty-three cases the blood Wassermann was positive in only thirteen (30.2 per cent) and the dark-field examination in 95.3 per cent, while the "local" Wassermann test was positive in 100 per cent.

Local treatment of the lesion with anti-spirochætics will not interfere with the "local" Wassermann test.

The following conclusions are drawn:

1. The "local" Wassermann reaction, carried out on the surface sera of chancres in forty-three cases of demonstrated primary syphilis, was positive in all cases. It was negative on the sera from five proved non-luetic lesions.

2. Of these forty-three cases of primary chancre, the dark field was positive in forty-one (95.3 per cent), and the blood Wassermann in thirteen (30.2 per cent).

3. Treatment of the lesion with anti-spirochætics, even when the spirochætes have disappeared, does not interfere with the reaction.

4. When a dark field is not available or the examination is negative, the "local" Wassermann test is the only method of making a positive diagnosis of primary chancre.

5. The "local" Wassermann test is a simple and practicable procedure for the diagnosis of primary chancre, and the reliability of the results obtained is comparable with that of the findings obtained with a dark-field microscope. JAMES A. H. MAGOUN, M.D.

SURGERY OF THE BONES, JOINTS, MUSCLES, TENDONS

CONDITIONS OF THE BONES, JOINTS, MUSCLES, TENDONS, ETC.

Bastianelli, R.: On the Diagnostic and Therapeutic Importance of Some Typical Tender Bone Points. *N. York M. J. & Med. Rec.*, 1923, cxvii, 125.

The attention of clinicians is called to the fact that many painful conditions are associated with typical bone points situated in the apophysis at the insertion of ligaments, capsules, and muscular attachments. The location of these points is as follows:

In the shoulder, at the pectoral-deltoid interstice in the styloid process of the radius; in the elbow, at the attachment of the external lateral ligament to the humerus; in the knee, anteriorly on the internal tibial condyle and the head of the fibula; the ankles; at the tips of the malleoli; in the vertebral spines; and in the tip of the coccyx.

These clinical manifestations are often termed idiopathic or functional disturbances and are often confused with neuritis and arthritis.

The treatment has been specific, consisting of local injections of 3 to 5 per cent phenol into the tender bony points. E. J. BERKHEISER, M.D.

Dambrin, C., and Miginiac, G.: The Diagnosis of Syphilis of the Diaphyses of the Long Bones (Le diagnostic de la syphilis diaphysaire des os longs). *Arch. franco-belges de chir.*, 1923, xxvi, 114.

Very frequently syphilitic lesions of the bones are diagnosed as tuberculous tumors, osteitis, osteosarcoma, chronic osteomyelitis, etc. Therefore the authors contend that such diagnoses should not be made until clinical, X-ray, and biological examinations have excluded syphilis. They report six cases of syphilis of the diaphyses of the long bones. These were as follows: a gumma of the femur in an adult with hereditary syphilis; syphilis of the radius and ulna; ulcerous gummata of the tibia in a case of hereditary syphilis; syphilis of the tibia; syphilitic osteitis of the ulna with spontaneous fracture suggesting chronic osteomyelitis; and latent syphilis of the radius. In only two of these did the symptoms suggest a syphilitic lesion, and most of them had been incorrectly diagnosed previously.

The authors state that the diagnosis of bone syphilis can and should be made from the clinical findings confirmed by the X-ray. The treatment should be exclusively medical. W. A. BRENNAN.

Hartwich, A.: Joint Mice (Beitrag zur Lehre der Gelenkmaeuse). *Arch. f. klin. Chir.*, 1922, cxx, 732.

The author made a histologic study of several joint mice obtained from three patients. In two cases there was a history of injury and the joint

mice still contained well-preserved particles of cartilage. In the third case there was no trauma or arthritis deformans. Although the author was unable to find any granulation tissue in the joint mouse in this instance, he believes that osteochondritis dissecans may have been present previously and had healed at the time of operation.

VORDERBRUGGE (Z).

Kalima, T.: The Anatomical Structure of Neoarthrooses (Ueber den anatomischen Bau der Neoarthrose). *Eesti arst*, 1922, i, 258.

Autopsies performed on two cases from the Leipzig Surgical Clinic, in which, one month ago and one year ago respectively, Payr mobilized an ankylosed elbow joint, made possible an accurate study of the formation of neoarthrooses. Earlier observations had shown that in the first stages of neoarthrosis there is a mucous sac formation in which degenerative processes predominate, particularly in the transplant, but that later the degenerative processes are supplanted by constructive processes which lead to the formation of a joint. In both cases studied the humeral end of the joint was covered with a fat-fascia flap with the fatty surface lying against the ulnar end of the joint, the head of the radius was resected, and another fat flap was interposed between the radius and ulna.

In the case operated on one month ago the middle flap showed a marked degenerative process with the beginning formation of a cavity, while the peripheral flaps had been partly replaced by connective tissue rich in cells. An organic relationship between the transplant and the ends of the bone was everywhere in evidence.

In the second case the joint ends were covered with a very thick whitish tissue and there was a well-formed joint cavity. The joint surfaces consisted of firm, fibrous connective tissue. A cartilaginous metaplasia was not observed. The inner surface of the capsule had everywhere undergone a change into a synovial membrane. The new joint had all the mechanical and functional characteristics of a normal joint.

HARMS (Z).

Loehr, W.: A Contribution on So-Called Myositis Ossificans Progressiva (Ein Beitrag zur sogenannten Myositis ossificans progressiva). *Deutsche Ztschr. f. Chir.*, 1922, clxxv, 238.

The disease under discussion attacks only persons who are under 20 years of age and without hereditary taint, and occurs more frequently in males than in females. Frequently the ossification of the muscles begins at an early age. The first symptoms are gradually developing vague, rheumatic pain localized chiefly in the neck and back between the

scapulæ. Sometimes acute painful swellings form under the skin. Usually there is no increase in the temperature, but in some cases there may be slight fever (up to 38.5 degrees C.). The subjects are regarded as weaklings and are generally backward. A curious characteristic of the condition in a very large percentage of cases is microdactylia of the thumbs and great toes. The disease spreads almost symmetrically, especially in the deep neck and back muscles along the spinal column on both sides. In advanced stages even the muscles of mastication are involved, the resulting trismus seriously interfering with nutrition. The heart, diaphragm, larynx, the perineal muscles, the muscles of the genital apparatus, the eyes, tongue, recti abdominis, and the peripheral aspect of the arms and legs are seldom affected. The disease progresses slowly, usually with intermissions, and causes death through inanition or phthisis. Recovery and an absolute stationary condition are rare.

Research with regard to the etiology has been without result. Treatment is generally futile, but recently improvement under roentgen irradiation has been reported.

The author gives a detailed description of the case of a man of 20 years. In this case a specimen of bone was removed under local anæsthesia and examined with care. The pathologico-anatomical development of the entire process is explained as follows:

First, a proliferation of the connective tissue occurs. This causes œdema through obliteration of the blood vessels, and a hyalinization of the intercellular tissue through a change in the metabolism. The hyalinization furnishes the basis for the calcification, and the latter is followed metaplastically by true ossification. LOEFFLER (Z).

Contargyris, A.: A Case of Traumatic Cubitus Varus (Un cas de cubitus varus traumatique). *Rev. d'orthop.*, 1923, xxx, 161.

Under the name "cubitus varus" has been designated a deformity of the elbow in which the axis of the forearm forms with that of the arm an angle opening inward instead of outward as normally. Contargyris reports the case of a man aged 24 years who, at the age of 6 years, fell from a height on his left side and broke his left elbow.

There are two theories of traumatic cubitus varus, the osteogenetic theory and the theory of vicious consolidation. According to the osteogenetic theory the deformity is due to the fact that the fracture of the external condyle, oblique from above downward and from without inward, does not involve the cartilage in its external part but involves it internally about the trochlea. Therefore there is unequal growth of the trochlear and condylar portions of the inferior extremity of the humerus, the hypertrophied condyle is displaced beneath the level of the trochlea, and the line of rotation of the elbow passing through these two articular eminences becomes oblique downward and outward. W. A. BRENNAN.

Michelsson, F.: Primary Infectious Osteomyelitis of the Ribs (Eine Beiträge zur Frage der primären infektiösen Osteomyelitis der Rippen). *Arch. f. klin. Chir.*, 1922, cxxii, 314.

Purulent osteomyelitis of the ribs is a well-defined pathologico-anatomical and clinical entity constituting about 1 per cent of all cases of osteomyelitis. Although it is often found in elderly persons, it must be considered a disease closely associated with the growth and formation of the vessels in the ribs. The clinical differences between osteomyelitis of the ribs and that affecting the long bones are due to the hidden location and anatomical peculiarities of the former. In most cases the onset is sudden, with chills, fever, and anorexia; in severe cases there is coma or delirium. Locally there is often only a dull chest pain which is increased by movement of the body and deep respiration. Later there is abscess formation on the chest wall or on the back, depending on the location of the focus.

In the differential diagnosis, diseases of the lungs and pleuræ can be ruled out by means of the X-ray. In subpectoral lymphadenitis the axillary glands are involved and the pain on bending, which is characteristic of osteomyelitis of the ribs, is absent. In chronic fistulous cases, syphilis, tuberculosis, and typhoid must be considered.

The treatment is surgical, and operation should be performed as soon as possible. RAESCHKE (Z).

Lupo, M.: Development of the Upper Vertebra and Occipitalization of the Atlas (Manifestazione di vertebra occipitale od occipitalizzazione dell'atlante?) *Chir. d. organi di movimento*, 1922, vi, 625.

In the terminal vertebræ of each segment of the spine there is a peculiar instability of formation by virtue of which vertebræ may be abolished or developed with a morphology akin to that of the contiguous segment. Anatomists have long studied these facts, but the introduction of the X-ray has helped in their clinical demonstration. We have been taught to accept the possibility of two different regional heteromorphoses of vertebræ, a caudal development and a cranial development in the group caudal to the skull.

The vertebral theory of the formation of the skull has been very generally accepted. Anatomical and embryological research has attempted to demonstrate the segmentation of the occipital bone in particular. In proof of the segmental tendency of the bone to approach a form like that of vertebræ caudal to it certain demonstrated anomalies have been cited, viz.: (1) transverse or paracondyloid processes on the occiput, (2) basilar processes, (3) a third condyle, (4) ossification of the suspensory ligament to the axis, (5) an articular facet on the anterior border of the foramen magnum, (6) a raised lip on the foramen magnum, and (7) subdivision of the hypoglossal canal.

The author attempted with roentgenograms to standardize the hitherto unexplained shadows in the occipito-atlas region in the light of the anatomical

findings mentioned. Both lateral, antero-posterior (through the mouth), and oblique views of this region were used.

Five cases with occipito-atlantoid anomalies are reviewed in detail. The first, which may be cited as an example, was characterized by a brachiocephalic head, cervico-dorsal scoliosis, torticollis, asymmetry of the face, and marked limitation of the movements of the neck. The patient was a 23-year-old girl whose father and mother were living and well. The family history was negative as regards deformities. The patient's birth had been normal and she had had no illnesses. She came for X-ray examination for suspected suboccipital Pott's disease. This was believed to be the cause of the torticollis, but had been present since infancy.

The X-ray showed a high-grade occipital assimilation of the atlas. The three adjacent cervical vertebrae were fused into one mass. Partial basal segmentation of the odontoid, dorsalization of the seventh cervical vertebra, and deformities in the dorso-lumbar spine were found. All traces of a free atlas were wanting.

The author concludes from his investigations that a revision of this entire subject is necessary as his observations indicate that in the published cases there is no proof of the development of occipital vertebrae, and the anomalies should be interpreted as due to occipital assimilation of the atlas.

KELLOGG SPEED, M.D.

Negru, D.: Three Cases of Sacralization of the Fifth Sacral Vertebra (Drei Faelle von Sakralization des fueften Lendenwirbels). *Clujul med.*, 1922, iii, 49.

As a rule the pain in cases of sacralization of the fifth sacral vertebra is attributed to spondylitis, arthritis of the spine, or simple neuralgia. To determine the true cause an X-ray examination is essential. For this, the patient's pelvis should be raised.

Negru reports three cases in which the spinous processes were hypertrophied, partly symmetrical, partly asymmetrical, and were grown to the iliac and sacral bones. Before the X-ray was used the condition was believed to be spondylitis.

According to American and French investigators, the pain associated with sacralization of the fifth sacral vertebra is caused partly by compression, friction, or traction, and partly by pressure on the fifth lumbar nerve. In the treatment Negru has found that the roentgen ray gives excellent results.

PETCO (Z).

Leontjewa, L.: Spondylitis in Children (Spondylitis bei Kindern). *Verhandl. d. Russ. Chir. Pirogoff-Ges.*, Petrograd, 1922.

Since 1909, 125 cases of spondylitis in children have been admitted to the hospital with which the author is connected. Fifty-five of the patients were between 2 and 5 years of age and fifty between 5 and 10. In 36 per cent of the cases, most of

them thoracic cases, there were cord symptoms, and in 64 per cent, most of them lumbar cases, there were cold abscesses. Fourteen of the patients died in the hospital.

The Albee operation was seldom performed. Subjective symptoms were usually easily alleviated, but in one case severe pain and limitation of motion developed one year after operation and there was a marked lordosis below the transplant which held the second lumbar vertebra. The roentgen picture revealed a fan-shaped gaping in front of the vertebral body. In addition there was a decrease in body length. Improvement resulted from rest, extension, and massage.

Weber ascribes the disappearance of symptoms to spontaneous loosening of the bony wedge splint from the spinous process of the third lumbar vertebra. He is opposed to the Albee operation in early childhood.

In the discussion of this paper Wreden stated that he makes curved incisions through the spinous processes, but does not use the chisel. The bone splint is laid within a shallow cavity made in the spinous processes with a concave rongeur. Bony union cannot be expected for months, and until it is obtained weight-bearing must be prevented.

Smirnoff mentioned the case of a 52-year-old woman with paresis of the lower extremities who became completely paralyzed after the Albee operation. A costotransversectomy by Menard's method with curetting of granulations brought about improvement.

Schaack stated that present conditions in Russia justify the frequent performance of the Albee operation because it does away with the rest cure and general treatment. Special treatment in sanatoria, however, improves the results.

Korneff, in summing up, placed the mortality in cases operated upon at 4 per cent, and in cases treated conservatively at 17 per cent. According to Petrograd statistics, good results are found after two to three months in 92 per cent of the cases.

VON DER OSTEN-SACKEN (Z).

Duchowskoi, S. M.: Traumatic Spondylitis (Ueber traumatische Spondylitis). *Nowy Chir. Arch.*, 1922, ii, 323.

Since Kuemmell in 1891 first described a peculiar type of traumatic spondylitis, "Kuemmell's disease" has been the subject of much discussion. Kuemmell described the condition as a peculiar rarefying osteitis of the vertebrae. During the war these cases increased in number. Of 500 patients with injuries to the spinal column who passed through the Traumatological Institute, eighty-five had a diagnosis of traumatic spondylitis. In the literature the author could find only thirty-five cases. In this article he reports ten typical histories from his own large material.

Clinically two periods can be distinguished, the first characterized chiefly by acute symptoms of concussion and injury to the back, and the second

by deformity of the spinal column. Prominence of a vertebra is not noted before four to six months or even later. In 80 per cent of the cases reviewed the twelfth dorsal and first lumbar vertebrae were affected. As a rule the trauma was a direct, heavy impact or fall on the back. The treatment consists of extension, the use of a plaster jacket for six to twelve months, and the use of a removable leather corset for not less than a year. SCHAAK (Z).

Mouchet, A., and Roederer, C.: Some New Ideas with Regard to Congenital Scoliosis (Quelques notions nouvelles relatives à la scoliose congénitale). *Rev. d'orthop.*, 1923, xxx, 19.

Congenital scoliosis may be classified clinically as scoliosis noted at birth and scoliosis manifested later.

Scoliosis visible at birth includes scoliosis with and without apparent bone anomalies. The latter, which is the more common, includes scoliosis with supernumerary half-vertebra. The supernumerary half-vertebra is often found to the left of the lumbar region and between the first and second lumbar vertebrae.

Scoliosis due to unilateral atrophy of one vertebra is manifested late. That which is associated with a lumbosacral malformation is rather common but is almost the latest to appear.

In conclusion the authors emphasize the importance of bearing congenital scoliosis in mind in dealing with so-called "essential scoliosis."

W. A. BRENNAN.

Sarantis-Papadopoulos, A.: Can Fixed Scoliosis Be Cured? The Value of Abbott's Method (La scoliose fixée guérit-elle? Sur la valeur de la méthode d'Abbott). *Rev. d'orthop.*, 1923, xxx, 35.

The author gives a critical review of the treatment of fixed scoliosis, discussing in particular the Abbott method. Abbott's method can effect a cure only when the scoliosis is easily reduced, the spine can be hypercorrected, and the treatment can be continued for from several months to several years.

Abbott's method is the only rational method and the only procedure which can cure a true scoliosis of medium severity. Spontaneous recovery from scoliosis is now considered impossible as cases of such recovery which have been reported were found to be only cases of false scoliosis or scoliotic attitudes which tend toward spontaneous cure. In true scoliosis there is aggravation of the fixation. In time, Abbott's method will undergo further modifications which will make it less severe.

W. A. BRENNAN.

Buzzi, A.: Hydatid Cyst of the Hip Bone (Sobre un cas de quiste hidatídico de hueso coxal). *Rev. Asoc. méd. argent.*, 1922, xxxv, 756.

Hydatid cysts occur rarely in the large bones. Of thirty-seven cases of cysts in the pelvic girdle collected by Landivar twenty-three were fatal, nine were cured, and the result in the others was unknown. The parasite may remain latent in the bone

for a long time until pain or an injury forces the patient to seek aid. There are three types of cyst, the unilocular, the multilocular, and the alveolar. The most common is the multilocular. In the spongy tissue of the bone this causes a lesion characterized by the infiltration of small vesicles which, in their development, produce a true death of the spongy tissue with the formation of sequestræ and ultimately of bone abscesses which invade the neighboring organs and end in surface ulcerations and fistulæ.

The author reports the case of a man of 35 years who had multilocular sacrococcygeal cysts. The condition began five years previously but its evolution was hastened by an injury occurring later. The abscesses opened spontaneously through several fistulæ which discharged purulent fluid and hydatid membranes. The X-ray showed that the lesion invaded the internal iliac fossa and the hip joint. At operation the hip bone was found almost completely destroyed. The patient died a few hours later.

W. A. BRENNAN.

Waldenstroem, H.: On Coxa Plana. *Acta chirurg. Scand.*, 1923, lv, 577.

Waldenstroem claims that he and Legg deserve priority in the description of coxa plana. They described this disease of the hip in 1909 and it was not until 1910 that articles were written on this subject by others.

The etiology is still uncertain.

Since observing his first case in 1907 Waldenstroem has followed the course of forty cases clinically and with the X-rays. The condition seems to have a definite course of from five to six years. Its stages are given as follows:

1. The evolutionary period: (1) the initial stage lasting from one-half to one year; (2) the fragmentation stage lasting from two to three years.

2. The healing period, lasting from one to two years.

3. The growing period, lasting until growth is completed.

4. The stage after growth is completed.

The end-results appear to be the same in both the treated and the untreated cases, but traction appears to be indicated in the earlier stages when the head and neck are soft. If pain and contractures are present, immobilization is necessary. Open operations are contra-indicated.

E. J. BERKHEISER, M.D.

Koenig, F.: Internal Injuries of the Knee Joint (Binnenverletzungen des Kniegelenks). *Therap. d. Gegenw.*, 1922, lxiii, 448.

The author reports seventeen cases of internal injury of the knee joint observed during the last two years. In twelve, the menisci were affected. The force need not be considerable; two of the patients were not aware of an accident. Objective clinical symptoms also may be totally missing, only atrophy of the quadriceps confirming the complaints.

The interpretation of the X-ray picture is often very difficult. A ruptured crucial ligament and defects in the surface of the cartilage can perhaps be recognized with certainty, but the nature of the meniscus injury is often impossible to determine. In the diagnosis the contrasting picture obtained after filling the joint with oxygen or filtered air has proved of value. The author has not been able to make up his mind to use arthro-endoscopy after the method of Bircher.

In the cases reviewed the operation often revealed other lesions besides the chief one shown by the X-ray. In one case it disclosed, besides the meniscus injury, a longitudinal tear in the anterior crucial ligament with the formation of a node in one part. In several cases longitudinal tears were found on the free surface of the femoral condyle.

The operation was usually performed under local anæsthesia. To open the joint a lateral transverse incision is often sufficient. In other cases, a lateral longitudinal incision is indicated, especially when the pain is higher up in the capsule. Textor's incision severing the patellar ligament in front has also been used. Even severance of the lateral ligament may be considered.

The result of the operation is very good when careful after-treatment with hot air, early massage, movement, and gymnastics is given. The author has never attempted to suture a torn meniscus. According to the findings of Bircher in ninety-nine cases and of Baumann in six, the danger of arthritis deformans after partial or complete removal of one or both menisci is merely theoretical. Even severance of the lateral ligament or the patella does not influence the final result. It is of importance that the operation be performed before stiffness or arthritis deformans has developed. HAUMANN (Z).

Nové-Josserand: Anatomical Types of Flat-Foot (Formes anatomiques du pied plat). *Rev. d'orthop.*, 1923, xxx, 117.

The X-ray has shown that there are different anatomical types of flat-foot. Some are characterized by a certain displacement of the astragalus, others are congenital, while others show the presence of a calcaneo-scapoidal synostosis.

Simple flat-foot studied roentgenographically shows these characteristics: (1) a modification of Chopart's joint, (2) encroachment of the head of the astragalus and the scaphoid on the calcaneum and the cuboid; (3) obliteration of the astragalo-calcaneal joint and a change in the shape of the small apophysis.

The most marked roentgenographic characteristic of congenital flat-foot is inclination of the astragalus, this bone being disposed almost vertically and its axis making an angle of between 170 and 180 degrees with the tibia. The calcaneum is also inclined downward, while the scaphoid and the cuboid have a tendency toward upward subluxation.

Cases are known in which flat-foot is associated with anomalies of the skeleton of the foot. The

most frequent malformation of this kind is abnormal ossification uniting the calcaneum to the scaphoid. In about 1 per cent of the cases there is a small supernumerary bone between the scaphoid and calcaneum. In rare cases this bone may attain a much larger size and may be united to either the scaphoid or the calcaneum. It is believed to be congenital. The association of this calcaneo-scapoid synostosis with flat-foot has been noted by many surgeons, and recently Sломann of Copenhagen has reported four cases. In this article Nové-Josserand reports two cases in which the anomaly was present in both feet but the flat-foot was unilateral.

In flat-foot associated with calcaneo-scapoid synostosis the bone displacements are much less marked than in ordinary cases of flat-foot although clinically the deformity may be much greater. As tarsalgia is always present, Nové-Josserand considers it probable that the flat-foot is the result of reflex contraction of the peroneal and levator muscles due to the pain.

W. A. BRENNAN.

Sonntag: Contribution upon Koehler's Disease of the Head of the Second Metatarsal (Beitrag zur Koehlerschen Krankheit am zweiten Mittelfussknoepfchen). *Muenchen. med. Wchnschr.*, 1922, lxix, 1567.

Twenty-six cases are described by the author. Almost always the second metatarsal head is the site of the disease; the third is affected very seldom. The condition occurs most frequently during the period of growth, in females, and on the right side. Subjectively there is pain. Of decisive value in the diagnosis is the X-ray picture, which shows shortening and broadening of the metatarsal head and changes in form and structure culminating in sequestrum formation. In the differential diagnosis, metatarsalgia, flat-foot, tuberculosis, and primary arthritis deformans must be considered. The histologic findings of Fromme and Axhausen showed no evidence of rickets, tuberculosis, syphilis, or osteomyelitis.

The slow development of the disease argues against a purely traumatic origin; in no case is a primary fracture responsible. Perhaps the condition can be classified with Schlatter's or Perthe's disease. Improperly fitting shoes and a hereditary tendency to a flat and broad foot may be other factors. During the period of growth there is a preliminary idiopathic necrosis of the epiphysis. Conservative treatment is recommended.

SCHULTZE (Z).

Barco, P.: Some Details in the Disposition of the Plantar Fascia (Sopra alcune particolarità di disposizione della fascia plantare). *Policlín.*, Rome, 1923, xxx, sez. chir., 1.

Having found many discrepancies in the classical descriptions of the disposition of the plantar fascia, the author made a careful study on the cadaver. His findings were as follows:

From the deep surface of the superficial plantar aponeurosis two septi arise, the first or medial or

which is inserted on the inferior surface of the calcaneum, the navicular, the first cuneiform, and the lower lateral surface of the first metatarsal, and the second or lateral of which is inserted on the lower lateral surface of the calcaneum, the large calcaneo-cuboid ligament, the crest of the cuboid, the sheath of the peroneus longus muscle, the lower lateral surface of the first metatarsal, and the infero-lateral surface of the third metatarsal. Therefore, besides the three regions mentioned in the classical description, these septi delimit another small region which contains the last two plantar interossei. The arteries and nerves on the sole of the foot are covered by the septi, the internal by the medial septum and the external by the lateral septum.

The deep plantar aponeurosis is enlarged by the inferior part of the first and by the third metatarsal, and merges with the septi described.

W. A. BRENNAN.

SURGERY OF THE BONES, JOINTS, MUSCLES, TENDONS, ETC.

Kaplan, A. D.: Anaesthesia of the Brachial Plexus (Ueber Anaesthesia des Plexus brachialis). *Nowy Chir. Arch.*, 1922, ii, 344.

The anaesthesia proposed by Kulenkampf in 1911 is employed but little in Russia but is worthy of more general use. The technique of the procedure is described. The author successfully induced anaesthesia by injection into the brachial plexus in thirty-two cases for procedures such as the reduction of luxation of the shoulder, resection, amputation, and sequestrotomy. In two cases the anaesthesia was insufficient, but secondary injections were made and the operation was then completed without general anaesthesia.

The complications worthy of mention which may occur during the injection are perforation of the subclavian artery and of the dome of the pleura. The former is entirely harmless; if blood flows from the needle, the needle must be withdrawn; thereupon the slight opening in the blood vessel will close immediately. Injury of the pleura frequently causes pain and possibly dyspnoea. In such cases morphine is of value; the author was compelled to use morphine twice.

Plexus anaesthesia is contra-indicated by diseases of the plexus itself, certain nervous conditions, and suppurative processes in the subclavicular region; also in the cases of children.

SCHAAK (Z).

Schnee, A.: Snapping Finger (Zur Frage des schnellen Fingers). *Moskow. M. J.*, 1922, ii, 148.

In the case reported a slight injury of the fourth finger six months previously had been followed by uneventful recovery. Several months later flexion of the finger became disturbed and painful, an obstruction appearing which could be overcome only passively. Accompanying this disturbance, a faint grating could be heard, and the slipping of the tendon over an obstruction could be felt plainly.

Operation disclosed evidences of an injury to the tendon of the flexor digitorum sublimis and an inflammatory swelling at this site which produced the picture described as it slipped through the narrow tendon sheath. Restoration of function was complete two months after the operation.

VON HOLST (Z).

Spisic, B.: The Operative Treatment of Tuberculous Spondylitis (Ueber die operative Behandlung der Spondylitis tuberculosa). *Liječ. vjesnik*, 1922, xliv, 67.

This is a report of five cases of spondylitis which were operated upon in the Agram orthopedic hospital by Albee's method. The author recommends that the surgeon adhere rigorously to the indications for operation, and operate as little as possible, especially in the cases of children. There are certain conditions under which operations cannot be considered, viz: during the acute stages of the disease; cases in which a fistula or an abscess situated near the field of operation would make aseptis impossible; cases with suppuration in which there are signs of amyloid degeneration; cases with tuberculous involvement of other parts, such as the lungs; the cases of small children who cannot be kept clean; and, finally, cases with marked gibbus or severe paralysis.

The cases operated upon by the author showed good ossification. In four, the condition was greatly improved, the pain was relieved, and the spasms became less frequent or ceased entirely. In one case of severe paralysis there was no improvement.

The author approves of the combined treatment of surgical tuberculosis, and believes that radical measures should be used only when the conservative method is not practicable. After operation, the patient should be kept in a plaster of Paris cast for twenty-four months for immobilization of the spine, and after that should wear an orthopedic corset. The general health must be improved as much as possible, and a return to the living conditions which originally caused the sickness must be prevented.

SPITZY (Z).

Fraenkel, J.: Ludloff's Operation for Hallux Valgus and Hollow Claw Foot (Zur Operation Ludloffs bei Hallux valgus und Hohlklau Fuss). *Zentralbl. f. Chir.*, 1922, xlix, 1745.

Fraenkel calls attention to the ideal results of Ludloff's operation which has the advantages of a wedge-shaped osteotomy in addition to those of operation on the first cuneiform bone and avoids division and lengthening of the tendon. In slight cases, the first stage of the operation, dissection of a pedunculated flap of the soft parts and removal of the mesial exostosis, is sufficient. From his experience in sixty-four operations, the author draws the following conclusions:

In the removal of the exostosis it is better to excise too widely than not widely enough. In suturing, the flap should be drawn snugly, laterally and

toward the plantar region, with the proximal joint somewhat overextended.

Shortening of the first metatarsal by Ludloff's method also gives very good relaxation of the muscles of the great toe in hollow claw foot. In two cases the author obtained very good results by supplementing it with plastic lengthening of the Achilles tendon. Division of the flexor longus digitorum tendon and of the adjacent capsular ligament is added when necessary.

VOLLHARDT (Z).

FRACTURES AND DISLOCATIONS

Grossman, J.: Fractures of the Head and Neck of the Radius. *New York M. J. & Med. Rec.*, 1923, cxvii, 472.

The author reports a series of 150 fractures of the elbow in which there were sixteen fractures of the head or neck of the radius, or of both, and points out that the latter condition is more frequent than is generally recognized.

He recommends reduction, immobilization with the elbow in acute flexion, and early baking. Motion should be delayed until the fluid has disappeared from the radio-humeral joint.

When the fragments are too small or the fracture is so gross that conservative treatment is impracticable, operative interference is necessary.

DENNIS W. CRILE, M.D.

Kleinberg, S.: Spondylolisthesis. *Ann. Surg.*, 1923, lxxvii, 490.

Spondylolisthesis occurs more frequently in males than was heretofore believed. The lesion presents a roentgenographic appearance that is pathognomonic. Trauma is a very important factor in the etiology.

Normally the body of the sacrum is tilted forward in the transverse plane. The fifth lumbar vertebra is also tilted so that its upper surface is directed upward and forward. This is a weak relationship, the vertebra being held in place only by its ligamentous attachments. The X-ray picture of the normal vertebra shows the body of the fifth lumbar to be quadrilateral in shape and with a definite interval between its base and the body of the sacrum. In antero-posterior roentgenoscopy it is important whether the exposure is made with the tube at the lumbar or at the dorsal spine.

The picture in spondylolisthesis shows the fifth lumbar vertebra to be dislocated forward so that in a front view one sees its upper surface and the anterior surfaces of the rest. The shadow of the last lumbar vertebra will then show the body, the transverse process, lamina, spinous process, and spinal foramen. A lateral view will show the dislocation very plainly, but this is sometimes difficult to obtain in the cases of large and fleshy persons.

The author has recently studied eight cases, one of which was that of a girl and the remainder those of adult males. In all the adult cases there was a

clear history of trauma preceding the onset of the symptoms. There is probably some developmental defect affecting the ligamentous structures and predisposing to dislocation, but trauma seems to be the chief etiological factor.

WILLIAM J. PICKETT, M.D.

Bejul, A. P.: Fractures of the Pelvis (Zur Frage der Beckenfrakturen). *Nowy Chir. Arch.*, 1922, ii, 351.

Generally speaking, fractures of the pelvis have received little attention, clinical observations are insufficient, and studies on the cadaver have not clearly explained their mechanism. Statistics regarding their incidence vary greatly. Gurlt claimed that they constitute 0.31 per cent of all fractures, and other authors estimate their incidence as high as 2.93 per cent, while according to the material of the Moscow hospitals it is only 0.03 per cent (Duchonin).

They are caused not only by a direct, heavy trauma; muscle traction is also of importance. The author has collected ninety-seven cases from the literature and in this article reports two of his own. One of his cases was that of a woman 50 years of age who was injured by an automobile, suffering a vertical fracture of the ilium besides other injuries. Death occurred one and one-half hours after the accident. The second case was that of a 36-year-old woman who was injured by a street car. A diagnosis of symmetrical fracture of the anterior pelvic ring with upward dislocation of the right ilium was made. The X-ray showed a fracture of the left horizontal ramus of the pubis and a fracture of the ascending ramus of the ischium with splintering and dislocation of the right ilium. The treatment consisted in extension with a 12-lb. weight on the right leg and a 5-lb. weight on the left. Measurements of the pelvis after fourteen days showed a decrease in the dislocation. The patient recovered and was able to walk after three months.

The author considers extension a very efficient method of treating fractured pelvis. Periodical measuring and X-ray examinations are important. Massage and exercise may be begun in the first weeks. Bed rest for eight to ten weeks is necessary. The prognosis is poor. In the ninety-seven cases collected from the literature the mortality was 33 per cent.

SCHAAK (Z).

Charier: Congenital Luxation of the Hip in a Hemiplegic Girl (Luxation congénitale de la hanche chez une fillette hémiplegique). *Rev. d'orthop.*, 1923, xxx, 155.

Charier reports the case of a 17-month-old child with luxation of the left hip and hemiplegia of the left side. In Charier's opinion the hemiplegia was of the ordinary infantile paralysis type, and the hip luxation was merely an ordinary congenital luxation in a hemiplegic child. In 100 congenital luxations he did not observe any similar case.

W. A. BRENNAN.

SURGERY OF THE BLOOD AND LYMPH SYSTEMS

BLOOD VESSELS

McGuire, S.: Mesenteric Thrombosis, with Report of Two Cases. *Virginia M. Month.*, 1923, 1, 23.

Two cases of mesenteric thrombosis with subsequent recovery after the removal of 7 ft., 4 in., and 4 ft., 6 in. of small intestine respectively are reported.

In acute cases the onset is rapid with abdominal pain which is at first colicky, but later continuous. Often the pain is agonizing and associated with shock. If diarrhoea is present, it is watery and frequently blood stained. If constipation is present, it is absolute. The abdomen is at first soft, flaccid, and not painful, but with fever of 104 or 105 degrees, may later become stiff and distended.

The diagnosis is extremely difficult, few cases being recognized before operation or autopsy. When the abdomen is opened, dark, bloody fluid escapes and the distended black coils of intestines are usually found in the pelvis or lower abdomen.

The operation of choice is resection and anastomosis, but it may be best merely to bring the cut ends of the bowel out of the wound.

MARCUS H. HOBART, M.D.

Olbrycht, J.: Fat Embolism. *Polska gaz. lek.*, 1922, 1, p. 468.

The object of this article is to point out the importance of fat embolism to medical jurisprudence and to state the author's position with regard to certain details related to this question. The material reviewed consisted of 283 cases of fat embolism in which the author confined himself exclusively to examination of the lung. The discussion begins with the premise that after passing through the heart, the fat usually lodges in the capillaries of the lung and in but few instances reaches the systemic circulation to cause embolism in the brain, kidneys, heart, liver, and other parts. To stain sections, Olbrycht uses Sudan III. Microscopic examination is essential as the lungs may appear entirely normal microscopically in spite of numerous embolisms, or at most may show only slight oedema and hyperæmia on the cut surface.

In a table the author shows that the most common and extensive fat embolisms are found after injuries to the long bones (in nineteen of twenty-two cases). In injuries to flat and short bones fat embolism is much more rare. Fat embolism seldom occurs in cases of fracture of the base and vault of the skull or the ribs. It is found in 50 per cent of the cases of injury to the abdominal wall but is rare when the internal organs are injured. Neoplasms and poisoning do not cause it. The author has found fat embolism after death from burns. He concludes that the degree of the burn is of more importance

than its extent. In cases in which a considerable period of time elapsed before death, fat embolism could not be demonstrated.

JURASZ (Z).

BLOOD AND TRANSFUSION

Mauriac, P., and Moureau, M.: The Mechanism of Variations in the Number of Leucocytes (Les variations du nombre des leucocytes; leur mécanisme). *J. de méd. de Bordeaux*, 1923, xcv, 39.

Variations in the number of leucocytes are explained in part by the unequal distribution of these cells in the peripheral and central circulations. It is probable that frequently this distribution is governed by vasomotor reactions.

Leucopænia may be caused also by an increase in the fragility of the leucocytes. In leucocytosis there is an increase in their resistance indicating increased activity of the leucopoietic centers.

Many factors have a part in variations in the leucocyte count, but in presence of a leucopænia it is difficult to determine the responsibility of each. Leucopænia and leucocytosis may be the result of very different causes, and when they are found in anaphylactic shock an attempt to explain them on the basis of differences in the concentration and the rate of flow of the blood is erroneous.

W. A. BRENNAN.

Halbertsma, T.: Concerning the Quantity of Blood Administered in Blood Transfusion (Ueber die Dosierung des Blutes bei Bluttransfusionen). *Nederl. Tijdschr. v. Geneesk.*, 1922, lxxv, 1272.

In blood transfusion success depends upon various details. It is known that in most cases the number of red corpuscles per cubic millimeter is increased after blood transfusion, but investigators who are inclined to consider this a constant rule will find that in a number of cases a diminution first takes place. This is especially true in diseases in which the blood-forming organs are affected.

In the investigations the author reports he sought to establish the fact that the change in the number of red blood corpuscles depends in the main on two factors: (1) the body weight, and (2) the quantity of blood transfused. He found that in general an increase of about one million red blood corpuscles depends upon the transfusion of about 15 c.cm. per kilogram of body weight. KOCH (Z).

LYMPH VESSELS AND GLANDS

Thompson, J. E., and Keiller, V. H.: Lymphangioma of the Neck. *Ann. Surg.*, 1923, lxxvii, 385.

The etiology and pathology of lymphangioma is briefly discussed and two cases are reported.

Case 1. The patient was a white male infant 13 months old who presented at birth a small tumor on the left side of the neck about on a line with the hyoid bone. At the age of 12 days the tumor was removed. Oedema of the face and lips on the same side then appeared and the tumor recurred in a few weeks.

Complete dissection of the tumor was then done. Paralysis of the tongue, which followed the operation, cleared up completely within six months, but there was still some oedema of the face and upper lip after this time. It seemed probable that there was also a diffuse lymphangiomatous condition. The pathologic diagnosis was lymphangioma with an excess of blood vessels.

Case 2. The patient was a white female aged 5 years. A tumor on the left side of the neck, first noticed four weeks previous to the examination, had grown steadily. At operation a multilocular cyst was removed. Recovery followed. The diagnosis was hygroma (multilocular lymphatic cyst of the neck). Two years later there was no recurrence.

From the point of view of the surgeon, the chief facts of interest in these tumors are that, like most embryonic growths, they are primarily benign, and rapid growth does not indicate malignant transformation. They may, and frequently do, contain a large hæmangiomatous element. In all cases, and especially in the cystic forms, they are more deeply situated than a superficial inspection would suggest, and their deep relations and extensions follow certain definite lines predetermined by their embryonic origin. Excision is the logical method of treatment.

CARL R. STEINKE, M.D.

Mottram, J. C.: Some Observations upon the Histologic Changes in Lymphatic Glands Following Exposure to Radium. *Am. J. M. Sc.*, 1923, clxv, 469.

The following observations are concerned with the histologic changes in the iliac glands of the rat following the exposure of the entire animal to the radiation from radium.

The author first gives a brief description of the normal gland. The afferent lymphatics open at the surface of the glands while the efferent leave centrally at the hilum. The center of the gland is occupied by irregular areas of plasmoidocytes which are grouped around blood vessels and separated by lymphatic channels. The exact nature of these cells is unknown; Maximow calls them "plasmoidocytes" and they are so called in this article.

Cellular masses of lymphocytes are found centrally located and grouped around blood vessels. Just within the capsule of the gland are groups of lymphocytes quite distinct from those centrally located. Around the margin are follicles consisting of circular collections of macrophages. Marginal lymphocytes are found around the outer half of these corpuscles, but at the inner side they are scanty or absent. Dividing cells are seen only in the follicles and among the plasma cells and have never been dis-

covered in either marginal or central lymphocyte groups. The cells of the follicles are generally accepted as the mother cells of the lymphocytes but several facts are given by the author to refute this argument.

In an experiment along this line the right iliac glands of six rats were removed and during the succeeding night sufficient beta and gamma radiations were given to cause marked disappearance of lymphocytes from the circulation. The left iliac glands were then removed for examination. It was found that a vast increase in the marginal lymphocytes had occurred in each case without any increase in mitosis in the cells of the follicles. These lymphocytes presented degenerative changes. Control animals showed no such changes.

Cells of the follicles show cell inclusions and it is now certain that phagocytosis of lymphocytes goes on within them. In a drawing, all stages from inclusion of a lymphocyte to its final disintegration are shown. This phagocytosis is absent in the absence of marginal lymphocytes and abundant when marginal lymphocytes are numerous, especially after radiation. The plasmoidocytes occupying the central portion of the gland are undergoing mitosis, and it is concluded from reasons given by the author that they give rise to lymphocytes by their division. Prolonged exposure to radiation not only destroys great numbers of lymphocytes but also inhibits the formation of new ones. This inhibition is accompanied by an increase in plasmoidocytes.

After exposure to gamma rays for twelve days the inguinal lymph glands were found to consist almost wholly of plasmoidocytes. Facts are given showing that the cells of the follicles can be traced through to plasmoidocytes, every intermediate stage being noted. Under conditions of heavy radiation lymphocytes in various stages of degeneration are found in cells of the follicles and in the endothelial cells of the lymphatics and the blood vessels. Evidence of the close relationship between cells of the follicles and endothelial cells is seen in the fact that all gradations between them can be found, and it is concluded that the difference is only qualitative. The presence of many young lymphocytes in the efferent lymphatics is strong evidence that this is their means of exit, but their presence in the endothelial lining of the blood vessels indicates that this is an alternative exit.

The conclusions drawn by the author are summarized as follows:

Lymphocytes enter the glands by the afferent lymphatics and are devoured by the endothelial cells. These cells then gradually change into follicle cells and, increasing in numbers by cell division, they next become converted into plasmoidocytes. The plasmoidocytes divide into lymphocytes, which leave the gland by the lymphatics or possibly by the blood vessels. The lymphocytosis which follows exposure to the roentgen ray does not correspond in point of time to the increased mitosis in the follicles, the latter preceding the lymphocytosis sometimes by many days.

A. JAMES LARKIN, M.D.

SURGICAL TECHNIQUE

ANÆSTHESIA

Von Neergaard, K.: **Experimental Research on Electronarcosis** (Experimentelle Untersuchungen zur Elektronarkose). *Arch. f. klin. Chir.*, 1922, cxxii, 100.

Leduc has succeeded in obtaining general and local narcosis by means of the intermittent direct current. Previously he had demonstrated the phenomenon of his electrical narcosis in animals. He then had two experiments made on himself, but these were not pushed to full anæsthesia. Paræsthesia in the extremities, loss of motor reactions, and a feeling of oppression were the chief symptoms.

Tuffier and Jardry repeated the experiments and decided the question whether to curarize or use surgical anæsthesia in favor of the latter. In two experiments on human beings the sensation was described as similar to that caused by chloroform, only somewhat more disagreeable. Jardry emphasized as advantages of the method the possibility of prolonging the anæsthesia as long as desired without noxious effects, and the wide therapeutic applicability of the procedure. Leclerc designated it as the method of choice for animals because it is least dangerous. Two experiments on human beings showed that the stage of excitation is more unpleasant than when ether is used. Nagelschmidt performed painless operations with a modification of the Leduc current and showed, like Leduc, that when the heart is stopped by a current that is too strong, resuscitation is possible with the same current.

The current is obtained from a direct current by the use of rotating interrupters. The author discusses the apparatus and the estimation of the strength of the current in detail. In the experiments reported, rabbits, dogs, and cats were used. After careful shaving, the cathode was applied to the forehead and the anode to the region of the loin. The resistance was fairly constant in the same animal. In different animals there were variations from 300 to 500 ohms. The stages were as follows:

Stage 1, the stage of excitation. This differed a great deal, being sometimes slight and sometimes very severe and decidedly more disagreeable than that of inhalation narcosis. As a rule it was impossible to ease it by gradual application of the current. First a tremor of the whole body was manifested. The head was raised stiffly, the muscles of the trunk became tetanically tense, there was increased secretion from the mouth and nostrils, and sensibility was diminished. Respiration and the pulse remained unchanged.

Stage 2. This stage was characterized by very violent defense movements. The head was thrown

around, the animal made frightened cries, the respiration became irregular and forced. The corneal reflex persisted.

Stage 3. The muscles were tensed tetanically, the corneal reflex was diminished, vomiting occurred occasionally, and reflex motions occurred when much cutting was done. Without plain delimitation, narcosis then took place. The corneal reflex disappeared, the tension ceased, and anæsthesia seemed to be complete. Acoustic stimulation acted for a surprisingly long time.

That the anæsthesia was complete was proved by the absence of hostile feeling in the dog when the narcosis was repeated. During the experiment, pulling on the stomach was tolerated, but traction on the ureter caused slight defensive movements. A test made by the author on his own hand demonstrated that the pain sensation is greatly decreased, but not abolished. From this it appears that the anæsthesia is not complete, although it is sufficient for most purposes. The pupil was medium large and reacted to light. Reflexes could be elicited only in the lower extremities but there were very marked interruptions of the central inhibitory fibers. The muscles showed a constant tonus with choreic twitching. On auscultation a humming muscle tone was heard. In about half of the cases voiding of feces and, somewhat less often, of urine occurred. The respiration was forced on account of the tetanically contracted musculature of the chest and abdomen which caused a funnel breast. Suddenly an expiratory relaxation took place, suggesting carbon-dioxide narcosis. This type of respiration is very unfavorable and constitutes the chief danger.

After the circuit was opened the narcosis soon ceased. The muscles relaxed and the animal lay as if sleeping. The hind legs were weak, and the gate was atactic. After fifteen to thirty minutes this disappeared. Many animals will take food after five minutes. The instantaneous reversibility mentioned by Leduc is present only when a weak current is used for only a short time. In the experiments reported the narcosis was continued for nine hours. After ten minutes the dog was feeding. The first half hour is the most dangerous. During the narcosis a certain habituation of the nerve centers takes place, so that the intensity of the current must be somewhat increased. The strength of the current was usually from 2 to 4 ma. Greater differences were due perhaps to differences in the contact of the forehead electrode.

When an overdose is given the breathing becomes shallower and more irregular and finally ceases altogether. The heart survives or ceases simultaneously. If the current is cut off, recovery may take place after from ten to fifteen minutes. Death occurred

twice in thirty-five cases. In some cases resuscitation was effected, even after artificial respiration failed, by switching the same current on and off in the rhythm of respiration. No fundamental differences between the different species of animals were noted. At necropsy the heart was found in diastole and small hæmorrhages due to forced breathing were discovered in the lower parts of the lungs. Microscopic examination revealed minute extravasations in the brain vessels.

Experiments with modified currents have so far yielded no practical results. The theory that the forced respiration is caused by an accumulation of carbon-dioxide in the blood could not be verified by an analysis of the gases. On the contrary the blood was found richer in oxygen, possibly because of an

increased elimination of lactic acid caused by the strong muscular contractions.

Therapeutic experiments on man require a better worked-out experimental basis. The theory of electronarcosis must first be established on electrophysiology and physical chemistry. The author assumes that the intermittent direct current flowing in thousands of small loops through the meshes of the intercellular substance moves the inorganic ions. Perhaps the potential of the membrane of the nerve cells is changed through induction and with it that of the membrane colloids and the cell function, resulting in hypo-, hyper-, and dys-function. In this, the action on the membrane potential depends on the frequency and strength of the current and the shape of its curve.

KULENKAMPFF (Z).

PHYSICO-CHEMICAL METHODS IN SURGERY

ROENTGENOLOGY

Schroeder, J. H.: Intensive Deep Roentgen Irradiation; Its Principles and Clinical Application. *Cincinnati J. M.*, 1923, iv, 74.

The underlying principles of intensive deep roentgen irradiation consist in: (1) the production and utilization of roentgen rays of extreme penetrating power; (2) the measurement of the relative intensity of the radiation on the body surface and in the depth of the tissue; and (3) the application of definite quantities of this radiation energy to deep tissues in accordance with the laws of biological resistance and reaction of the tissues.

The rays that issue from the roentgen tube at voltages of 200,000 or over must be filtered through heavy metal filters in order that the rays reaching the body will be only those that will pass through centimeter after centimeter of tissue with a practically equal percentage of absorption in each succeeding layer. These rays are the so-called practically homogeneous rays of Dessauer. They are used only for deep application because they allow a maximum proportion of the original surface intensity to reach deep tissues.

In order to measure the quantity of roentgen radiation absorbed, the iontoquantimeter has been devised. This is an adaptation to clinical requirements of the ionization chamber, well known to physicists. By means of it, the depth dosage as well as the dosage at the surface may be accurately measured. This dosimetric technique is the basis of all scientific deep roentgen therapy, and upon this technique alone rest the clinical achievements in this field in the German clinics.

The effect of radiation upon the cells of the body is due to the quantity of radiation energy absorbed and constitutes the biological reaction of the cells. It may be said in general that small doses irritate and large doses destroy cells and tissues, but different cells and tissues of the body do not manifest their reaction in the same degree. Some cells are very susceptible or radio-sensitive, and some are very resistant. Upon this difference of radio-sensitivity rests the ability in therapy to influence one tissue more than the other.

The biological effect of roentgen radiation is the reason for its clinical application to destroy or reduce the functional activity of the very susceptible glandular tissues and to destroy neoplastic cells.

Certain histologic types of sarcoma are very radio-sensitive, and when such neoplasms are localized they may be expected to disappear rather promptly under the influence of proper radiation doses. It has been determined that an 80 per cent skin-unit dose is sufficient to destroy sarcoma cells. In widely dis-

seminated sarcomata less favorable results are to be expected but even here remarkably beneficial effects are at times accomplished, as in two cases briefly described.

In the treatment of deep carcinoma by the roentgen rays it is essential that from 100 to 110 per cent skin doses be absorbed in the cancer cells. To accomplish this, great refinement of technique is necessary if undue injury to the overlying skin and surrounding structures is to be avoided. Cross-firing from two or more portals of entry usually accomplishes the desired result. The dose must be administered in one sitting because there is no way of measuring the dose as a sum of fractional applications. Under present operating conditions the dose can be administered to one area in four hours of constant radiation, at a depth of 10 cm. and through a body diameter of 20 cm.

It is not considered safe to repeat a carcinoma dose in less than six weeks, because the physical effect of such an irradiation dose persists about that long. There is a rather noticeable effect on the blood-forming organs, rather than on the blood itself, that leads to a reduction in the lymphocytes and, to some extent, of the red cells. In persons with good resistance the blood picture becomes restored in the course of six weeks.

Cancer of the pelvic organs is particularly amenable to roentgen irradiation because of the available connective-tissue elements which are undoubtedly stimulated through the absorbed radiation. Several cases of deep carcinoma are reported in detail to illustrate the remarkable results which may at times be obtained by the newer intensive roentgen therapy. The effects are not always equally promising, however, as recurrences may develop and in some cases the course of the malignant disease does not seem to be influenced by the irradiation.

As regards the dangers attending deep irradiation, the author states that he has applied required large irradiation doses to most of the regions of the body, except the brain, and has observed only transient irradiation by-effects. The patient's ability to react favorably to the primary effects of deep irradiation doses may determine the final result.

ADOLPH HARTUNG, M.D.

Lacassagne, A., and Coutard, H.: The Effect of Radiation of the Ovocytes on Fecundation and Gestation (*De l'influence de l'irradiation des ovocytes sur les fécondations et les gestations ultérieures*). *Gynéc. et obst.*, 1923, vii, 1.

To determine the effect of roentgen radiation on ova subsequently to be impregnated and on the ova of the offspring of animals whose ovaries had been radiated the authors conducted three experi-

ments. Seven normal female rabbits in one group were subjected to radiation, two female rabbits born of the first group were subjected to radiation, and six female rabbits born of the first group were studied but not radiated.

The results of these experiments were, briefly, as follows:

1. In the rabbits of the first group there was a period of temporary sterility of from three to four months.

2. Fecundity was re-established but was diminished as shown by a progressive reduction in the number and viability of the newborn of successive litters and the fact that coitus was frequently non-productive.

3. A secondary progressive sterility was produced which greatly resembled a definite premature menopause.

The effect on the newborn rabbits was a considerable mortality. Of fifty-one rabbits born of radiated rabbits, twenty-nine died shortly after birth as compared with five of fifty rabbits born of normal animals. The twenty-two animals which survived were normal at birth and developed normally to adult age.

The two female rabbits in the second group became pregnant and their first litter was normal in every way. Following radiation the findings were the same as those in the first group.

In the third group the life, habits, and litters of the animals were normal in every way.

The conclusions drawn by the authors are as follows:

1. The lesions produced by a single radiation seem to be definite, even after a small dose. The ova which survive are altered, an alteration which manifests itself sooner or later, according to the severity of the lesion, in the course of development of the follicle, embryo, fetus, or newborn.

2. The ova are differently affected by radiation. Those that are most developed suffer most, and only a certain number of primordial follicles resist the action of the rays.

3. The changes in the ova are demonstrated by the presence, in the gravid uterus, of embryos in different stages of development, both embryological and pathological, in addition to well-formed embryos.

4. The experiments are too few to warrant the statement that radiation does not exert a definite cellulo-hereditary influence.

5. Radiation has no effect on the determination of sex, as the proportion of males to females among the newborn of radiated female rabbits is always normal.

6. In the human female X-ray treatment of the ovaries, even in small doses, may influence the function of reproduction abnormally. Therefore the application of the rays to the treatment of metrorrhagia in young women causes a certain permanent damage even though menstruation may return.

S. DI PALMA, M.D.

RADIUM

Degrafs, P.: The Value and Use of Beta Radium Rays (Utilité et utilisation des rayons β du radium). *Presse méd.*, Par., 1923, xxxi, 145.

Although the beta rays are the most important emitted by radium, all the qualities of radium are generally attributed to the gamma rays which numerically are not much greater. As the beta rays have only a weak power of penetration, their energy is exhausted on the superficial layers of the tissues when they are applied to the surface. When the beta rays are filtered out, no reaction is produced, but, if desired, a therapeutic dermatitis may be produced with them.

If eczema is treated with 2 mgm. of radium element with a filter which arrests the beta rays, there is no change in the lesion, but if the same amount of radium is applied with a filter which permits 81 per cent of the soft beta rays and 95 per cent of the hard and secondary beta rays to pass, the objective and subjective symptoms are soon modified. The beneficial effect of the beta rays is therefore undeniable. Similarly, if certain superficial baso-cellular epitheliomata are treated with 3 mgm. of radium element for one and one-half hours, a cure will be effected, but if the beta rays are filtered out the lesion will not be changed.

Among the conditions amenable to the action of the beta rays are eczema, pyodermitis, acne, papilloma, warts, pigmented naevi, lupus, certain angiomata, pre-epitheliomatous conditions, and certain cutaneous epitheliomata.

The action of the beta rays is much more rapid than that of the other rays emitted by radium. Therefore, if the desired results can be obtained with them, they are preferable to the gamma rays.

W. A. BRENNAN.

Lawrence, H.: Experimental Research Work in Radium Therapy, Including Death, Retardation of Growth, Prolongation of Life, Determination of Sex, Sterilization and Artificial Parthenogenesis, Reproduction Without the Male. *Med. J. Australia*, 1923, i, 463.

This article deals chiefly with the influence of radium upon the metamorphosis of insect life. The experiments were done on the *Bombyx mori* or common silkworm moth and have been going on for ten years continuously. Ten generations of moths have never been out of the influence of radium radiations, and the great changes taking place are due to the continued exposure.

It was found that if the ova of the moth were exposed to 10 mgm. of pure radium bromide, with $\frac{1}{8}$ in. distance and one layer of lint and mica intercepted, the ova were so affected that, though fertilized, they were destroyed.

Other experiments in which aluminum or leaden interceptors were used showed the great value of the high velocity beta electrons from Radium C (which are not present in the X-rays). It is also

found that under the influence of radium the life history of the insect is being altered.

In the disintegration of radium, alpha particles, beta electrons, and gamma rays are produced, and it is estimated that the energy expended in bringing about these changes is equal to that developed in a tube voltage of one or two million volts. As the greatest tube voltage which scientists have been able to develop in the production of the X-ray is about 250,000 volts, it is seen that the initial force in the production of alpha particles, beta electrons, and gamma rays is about four to eight times as great as that used in the production of the most penetrating X-rays yet produced. In fact, the gamma rays of radium are 3.5 times greater in penetration than the most penetrating X-rays yet produced.

Two cases diagnosed as papillomata of the eye interfering with vision are reported. These were treated with an applicator emitting even soft beta electrons. Both lesions disappeared and the patients are well.

The author calls particular attention to the fact that the beta electrons present from Radium C are of immense therapeutic importance. In the unobstructed X-ray there are none except the few soft, slightly penetrating ones formed when the X-rays strike tissue, and these are of slight efficiency as compared with those from Radium C.

Emphasis is placed by the author on cross-fire treatment in which beta electrons are used locally and other preparations close by emit gamma rays only. The efficiency of this form of treatment is illustrated by three cases of epithelioma of the lip in persons who previously had had a clinical cure of the disease. The author does not regard these cases as recurrences but states that the lesions form in persons predisposed to the condition. All of the cases cited were clinically cured by the cross-fire method. A case of epithelioma of the larynx was cured by placing radium giving off beta electrons in the hollow of an intubation tube against the growth and cross-firing with gamma rays from the exterior of the neck.

The lethal dose for ova of the silkworm was found to be the use for one hour of 10 mgm. of radium bromide screened only sufficiently to absorb the alpha and the softest of the beta electrons. Larvæ

only a few days old were killed in from two hours to three hours. The time required is greatly increased as the grub grows older. Cross-fire between two 5-mgm. tubes was found to be more effective in one-half hour than the use of either tube for one hour. When placed directly upon the ova, the radium killed about ten eggs, but when it was placed 4 or 5 mm. from them it killed twenty eggs. This proves that in the therapy of rodent ulcer diffusion must be considered. A tremendous dose of X-ray equal to about ten erythema doses—200,000 volts, 5 ma., 20 cm. from the anticathode for four hours and twenty minutes with a filter of 1.3 mm. of copper and 1 mm. of aluminum—resulted in the free hatching of the eggs.

The X-rays and radium rays are not alike, especially when high-velocity beta electrons are used. Two cases, one of basal-cell and one of squamous-cell epithelioma, are cited in which a cure was effected by radium with the use of the high-velocity beta electrons. In larvæ given radium in doses insufficient to kill, growth is retarded. Also seeds exposed to radium are retarded.

In none of the many experiments carried out on animals and vegetables was there any evidence of stimulation; in every case there was retardation, if any result at all. The seeds of turnips exposed to radiation showed deformity and retarded growth when radium was used but appeared unchanged when the X-ray was employed. This supports the author's contention that the high-velocity beta electrons of radium should be employed whenever possible, and that the beta rays formed when the X-rays strike tissue are soft and feeble in penetration as compared with those from radium. Kroenig and Friedrich have shown that the action of soft and penetrating X-rays is practically the same. No evidence of stimulation was found in over 1,000 experiments with radium in all possible types of exposure.

In the tenth generation of moths kept under the influence of radium there are about five males to one female. This change is attributed to the radium influence. Sterilization of the moth can be produced by radium at any stage of development. The X-ray has only slight power to produce sterilization.

A. JAMES LARKIN, M.D.

MISCELLANEOUS

CLINICAL ENTITIES—GENERAL PHYSIOLOGICAL CONDITIONS

Fawcett, J., and Ryle, J. A.: Cases of Delayed and Immediate Anaphylactic Shock, with a Note on the Circulatory Phenomena. *Brit. M. J.*, 1923, i, 325.

True anaphylactic shock in man is rare. Notwithstanding the innumerable instances of the repeated administration of various sera during the war, it has been generally conceded that cases of serious or fatal anaphylaxis were few. It is recognized that man is less sensitive and less easily sensitized than the experimental animal, and it would seem that hypersensitiveness in man is more apt to be an inborn than an acquired phenomenon, and that most of the recorded fatal cases were those of asthmatic persons.

The first case reported by the authors was that of a woman, aged 23 years, who was admitted to the hospital because of a "septic finger." While she was under the influence of an anæsthetic during one of several operations, 50 c.cm. of antistreptococcus serum were administered. Four days later patches of urticaria began to appear, and eight days after the injection the appearance of large patches of urticaria was associated with asthma, pallor, a rapid and weak pulse, and a sensation of cold. Following a small dose of adrenalin the asthmatic symptoms disappeared. The pulse at the wrist became imperceptible and remained so for over twelve hours. The apex beat could be felt and remained about 130. The patient was never cyanosed, and she continued to be mentally alert, quite rational, and calm. She was treated throughout with warmth, small quantities of fluid, brandy and lactose by mouth, and the rectal administration of glucose solution.

Twenty-eight hours after the onset the radial pulse could be felt faintly. The patient then complained of acute pain in every joint. The pulse rapidly returned to nearly normal about thirty-four hours after the onset of urgent symptoms. Two days later the joint symptoms had entirely disappeared, and subsequently recovery was uneventful except for the development of an abscess, which was presumed to be metastatic, in the right buttock.

The temperature reached 102 degrees F. when the shock symptoms were at their height but quickly fell again to normal. Gastro-intestinal symptoms were absent excepting at the onset when vomiting occurred twice and there were two bowel movements. It was later discovered that during an attack of diphtheria nineteen years previously the patient had been given antitoxin but there had been no resulting symptoms. The authors therefore assume that, in

spite of the long interval, this was an instance of sensitization by a previous dose.

In the second case, that of a soldier, the symptoms appeared within an hour after the administration of a third dose of A.T.S. After one of two previous prophylactic injections the patient had felt ill. The symptoms observed in this case were almost identical with those of the first except that asthma was absent, and with the exception of the symptoms of circulatory failure, gastro-intestinal symptoms were the most prominent.

In both cases the fluid intake was well maintained and there was no unusual loss by sweating, vomiting, diarrhoea, or diuresis. The symptoms of circulatory shock persisted long after the disappearance of bronchial, cutaneous, and gastro-intestinal reactions. The authors are not familiar with any other condition in which pulselessness can persist for so long with a good prognosis. The cases reported emphasize the importance of obtaining a history regarding previous serum treatment in every case about to be treated with serum.

STANLEY J. SEEGER, M.D.

Lambert, R. A.: Oriental Sore (Cutaneous Leishmaniasis) in the United States. *J. Am. M. Ass.*, 1923, lxxx, 986.

A wider knowledge of oriental sore on the part of American physicians and public health officers is important as in the last two years at least eight cases of this infection have been reported in this country and Canada. Lambert reports two cases, and outlines the course and treatment usually followed. The article is concluded with the following summary:

1. The two cases of oriental sore in the United States here reported make a total of ten cases recorded in the last two years.

2. The incubation period may be long. In one of the reported cases the lesion did not appear until three months after the patient's arrival in the United States, and probably eight months after the infection.

3. Biopsy is to be advocated in suspected cases, the specific protozoa (*Leishmania tropica*) being more readily demonstrable in properly stained sections than in smears.

E. C. ROBITSHEK, M.D.

Girgolaff, S. S.: The Pathogenesis and Treatment of Spontaneous Gangrene (Zur Pathogenese und Therapie der Spontangangraen). *Westnik Chir. i pogran. oblastei*, 1922, i, 185.

The term "spontaneous gangrene" has been applied to a number of diseases in which the most striking symptom is gangrene of the lower extremity, but should be used for only those in which there is an underlying involvement of the walls of the vascular system. The changes in the vascular walls

consist in a thickening of the intima beginning in the membrana elastica with the formation of thromboses along the wall and ending in occlusion of the vascular lumen.

The cause of these changes must be sought in changes in the blood consisting in an increase in the viscosity and coagulability, greater resistance of the erythrocytes, and an increase in the vasoconstricting property of the serum. The disease may be characterized as a toxic angiosclerosis or a true autotoxic condition. According to the views of Oppel, the cause of the change in the blood may be a disturbance of the function of the endocrine glands, in which a constant vascular spasm is of great etiological importance. The author regards as logical Oppel's proposal to remove one suprarenal gland (the left) in these cases of gangrene, as the suprarenal glands produce substances which constrict the blood vessels. Girgolaff has carried out this operation successfully. SCHACK (Z).

Paszkiewicz, L.: The Causation of Neoplasms by Tar (Erzeugung von Neubildungen durch Teer). *Polska gaz. lek.*, 1922, i, 707.

The author reports his attempts to cause cancer by the application of tar after the method of Yamagiwa. While positive results were obtained by Lipschuetz on the eighty-eighth and one hundred and twenty-fifth days, and by Bierich and Moeller in the third and fourth months in 60 per cent of their cases, the author was unable to obtain them up to six months. Neither did he observe, like Bierich and Moeller, any excessive growth of horny substance in the epithelium in the first month or proliferation of the epithelium at the end of the second month. At most, he noted in a few animals a moderate shedding of the epithelium for a short period of time.

The author's experiments were made on white rats, half of them young and the other half old, and the tar used was that sold by druggists for therapeutic purposes. Irritation was caused with this tar every second or third day by rubbing it into the back, rubbing it into the skin after previous scarification, or by subcutaneous or intracutaneous injections. In female animals it was injected into the mammae or rubbed into the skin below them. The area of injection was carefully shaved.

All the animals remained alive and in good health. The author does not consider his experiments as finished, but so far they have convinced him that to irritate a certain spot alone is not sufficient to cause a malignant neoplasm, even if this is done continuously and in the same manner; other factors are also of importance, such as general habits of life, the kind of nutrition, and individual and race peculiarities. He believes that experimental cancer cannot be considered identical with clinical cancer. In conclusion he expresses doubt as to whether the metastases observed to spring from tar neoplasms are true metastases of these neoplasms.

JURASZ (Z).

GENERAL BACTERIAL, MYCOTIC, AND PROTOZOAN INFECTIONS

Chaoul, H.: The Treatment of So-Called Surgical Tuberculosis (Die Behandlung der sogenannten chirurgischen Tuberkulose). *Jahresk. f. aerztl. Fortbild.*, 1922, xiii, 1.

This article is a discussion of the effect of roentgen irradiation. From 1919 to 1921, 165 persons with tuberculous lymphadenitis were treated. Sixty-four per cent were cured, 31 per cent were benefited, and 5 per cent were unaffected or suffered a relapse. The most favorable results are obtained in the inflammatory, hyperplastic forms of the condition. In glands which have already become softened it is advisable first to evacuate the pus by puncture. The slowest reactions occurred in suppurating ulcerative or fistulous lymphomata which ruptured externally. The best results were obtained with medium strong doses (40 to 60 per cent of the skin erythema dose) given in six or seven sances at the most.

Of 114 persons with tuberculosis of the bones and joints, sixty-eight were cured, thirty-six were benefited, eleven remained unaffected, and four died. The dosage in the depth of the area of disease was 50 to 60 per cent of the skin erythema dose. The most rapid reaction was seen in tuberculosis of the foot, the hand, the ribs, and the sternum. In spondylitis, the greatest care is necessary because of the danger of the disintegration of bone. In the presence of a tendency toward healing in tuberculosis of the bones and joints the favorable effect of the roentgen irradiation is noted early. In some cases the results are considerably improved by surgical interference for the removal of loosened sequestra and the puncture of gravitation abscesses. Incisions should be abandoned because of the associated danger of secondary infection.

The results of roentgenotherapy are favorable also in peritoneal and urogenital tuberculosis, particularly tuberculous epididymitis. Of ten patients, six were cured and three were considerably improved. The dosage was similar to that used for the treatment of the lymph nodes. The area selected should not be too small.

In conclusion the author states that even though roentgenotherapy does not compare favorably with heliotherapy in every localization of tuberculosis, it nevertheless has such great advantages in regard to the shortness of the treatment and the ease of its application that it should be given preference over heliotherapy in many cases, even though the outlook is less favorable.

WAGNER (Z).

EXPERIMENTAL SURGERY

Sweet, J. E.: Some Recent Developments in Surgical Research. *Pennsylvania M. J.*, 1923, xxvi, 396.

HIGH INTESTINAL OBSTRUCTION

The symptoms of high obstruction do not at first differ from those of any other intraperitoneal condition. The physician should not wait for localizing

signs, but should get the patient where surgery can be done if necessary. In the meantime the use of morphine is contra-indicated as it paralyzes peristalsis, and increased peristalsis is the body's attempt to get rid of the toxins.

The author mentions seven theories as to the cause of death from obstruction. An eighth theory is that under the conditions of obstruction some toxic element is elaborated by the cells of the mucous membrane of the intestine. This theory has been questioned but not disproved and is the one which Sweet regards as most correct. The intestine elaborates a proteolytic ferment which normally acts upon the food in the intestine. Under the conditions of obstruction this ferment is absorbed into the lymph and blood streams, and we have a condition entirely comparable, in symptoms and in character, to acute pancreatitis.

The study of the problem by producing various types of obstruction is so complicated, and the interpretation of the results so difficult that in recent work an attempt has been made to study the effects of the poison in the normal animal. The poison is obtained by precipitating the content of an obstructed loop of intestine in alcohol, and can be further purified to some extent. When a fatal dose is injected intravenously into a normal animal, the picture which follows corresponds to that in an animal with an actual obstruction, and the autopsy findings also are constant and typical. Therefore the intestinal content of this animal, with no obstruction and with nothing whatever done to its intestinal tract, contains the same poison. It is scarcely probable that this toxin is the injected dose, for the great dilution in the fluids of the entire body and the loss incident to the crude methods of collecting and recovering it rule out such a possibility. Accordingly, it seems apparent that the toxin itself creates conditions favorable for its further elaboration. This experiment has been carried through four consecutive animals. To the findings of the experiment described, another observation is added, viz., that the same toxin appears in the intestine after the removal of both adrenals when there has been no obstruction of, or operative interference with, the intestinal tract. This phenomenon, therefore, seems to indicate strongly that the only factor responsible is a disturbance of a normal process.

The experiment with the normal animal and the intravenous injection can be carried out in a relatively short time. The animal is attached to recording apparatus, cannulae are placed in the different portions of the intestine, and the contents of each portion are studied separately. In this way it was found that the excretion of poison is greater in the duodenum, but is not limited thereto, and that it appears before the characteristic hæmorrhage into the intestine.

By a different line of experiment, the author and his coworkers arrived at the same conclusion as Whipple, namely, that the cause of death in high

obstruction is a poison which is formed in the cells of the mucous membrane of the small intestine, more in the upper small intestine than in the lower, which passes in two directions from these cells—into the lumen of the intestine, where it does no further harm, and into the lymph and blood streams, from which the toxic effect is exerted upon the body as a whole.

In explanation of the life-saving action of the stomach-pump before operation, Sweet says that by removing the toxin already excreted into the gut, gastric lavage creates conditions favorable for the excretion of still more toxin into the gut, and the greater the amount thrown out into the bowel, the less the amount to be absorbed into the body. Therefore the intestine should be given every chance to empty itself back into the stomach, morphine should be withheld, and water should be given by the intravenous injection of saline solution. The appearance of the large bowel in these experiments leads to the conclusion that toxin is being excreted into it. Therefore water should be given to wash the product of the mucosa into the bowel. The finding of the toxin after adrenalectomy suggests the addition of adrenalin to the saline solution. The operation of choice is the one which will permit the most thorough drainage of the bowel both above and below the obstruction. The administration of saline solution should be continued also after operation.

THE EFFECT OF RADIUM UPON NORMAL NERVOUS TISSUE

The work of the author and his coworkers with radium began with the request of Frazier for an experimental study of the effect of radium upon the normal tissue of the brain and cord to obtain more direct information as to the best procedure in the treatment of brain tumors.

The first effect of the radiation is upon the nuclei of the cells. This may be sufficiently severe to cause the death of the cells, but does not destroy their ferments. These ferments attack the substrata of the cells, and if the cells contain chiefly protein, the toxic products of protein breakdown are set free and a condition arises which is comparable to the condition in acute pancreatitis or high obstruction. It would seem, then, that radium is a therapeutic agent of limited specificity.

The author summarizes the conclusions drawn from these experiments as follows:

"We should not place our confidence in the use of radium alone. No operable condition should be entrusted to radium alone. All removable cells should be removed with the knife or the cautery, leaving to radium the task of reaching the small masses of cells in the metastases. In other words, operation plus radium; never, in any possible case radium without operation. We must, in our practice, work constantly against the danger of adding to the numbers of hopeless cases by permitting a deceiving trust in radium alone."

THE FUNCTION OF THE GALL-BLADDER

The only mechanism for the emptying of the gall-bladder which could be found was the pressure of the adjacent organs and possibly a slight negative pressure which might be created in the intramural segment of the common duct as a wave of peristalsis passes over this portion of the intestine.

The organ is supplied with a lymph system out of all proportion to the amount of tissue contained in its walls. During the process of concentration, the water of the bile can enter only the veins or the lymphatics. The development of the lymphatics is so extreme as to suggest that the concentration of the bile takes place by means of the action of these vessels. If suitable solutions are placed within the gall-bladder they can be detected in a very short time in the lymph obtained by inserting capillary pipettes into the lymph vessels—in fact, as quickly as it is possible to collect the lymph after injecting the solution into the interior of the gall-bladder.

Experiments now in progress further indicate that reactions for bile can be obtained in lymph collected from the lymph channels of the gall-bladder.

The demonstration of the extent of the lymphatic apparatus of the gall-bladder and the speed with which substances pass from the gall-bladder into the lymphatics has made clear to Sweet the directness of the relation between other intraperitoneal infections and cholecystitis. As he sees the process now, organisms from a chronic appendix, for instance, pass into the portal blood stream, are filtered out of the blood by the liver, and then thrown into the bile. Were it not for the concentrating function of the gall-bladder and the direct relation to the lymphatics, these organisms would pass out through the common duct to the interior of the intestine, which is, strictly speaking, outside of the body. Instead, they enter the gall-bladder and pass with the stream into the lymphatics, where they cause inflammation. Every infection of the body, except a pyæmia, is a lymphangitis.

With regard to the value of the duodenal bucket in the diagnosis of gall-bladder conditions the author says, in conclusion: "I will leave you to deduce my opinion from the statement that we are at present working on the hypothesis, developed from a consideration of the facts and experiments I have just described, that what goes into the gall-bladder through the cystic duct, never passes out of the gall-bladder through the cystic duct."

CARL R. STEINKE, M.D.

Swift, H. F., and Boots, R. H.: The Influence of Sodium Salicylate upon the Arthritis of Rabbits Inoculated with Non-Hæmolytic Streptococci. *J. Exper. Med.*, 1923, xxxvii, 553.

Rabbits inoculated intravenously with non-hæmolytic streptococci developed inflammation in almost as many joints while under the influence of full therapeutic doses of sodium salicylate as the untreated controls similarly inoculated, but the inflammation was usually less severe.

This inflammation-inhibiting effect was most evident in the animals inoculated with streptococci of the lowest virulence, and could not be demonstrated in animals inoculated with hæmolytic streptococci.

SAMUEL KAHN, M.D.

Marinesco, M. G.: The Rôle of the Oxidizing Ferments in the Mechanism of Thermogenesis and Fever (*Recherches sur le rôle des ferments oxydants dans le mécanisme de la thermogénèse et de la fièvre*). *Presse méd.*, Par., 1923, xxxi, 153.

As the result of his investigations the author concludes that the most important factors in the regulation of thermogenesis and the development of fever are the oxidizing ferments. These vary in quantity in different animals and at different temperatures. They are very abundant in man and in birds. In all febrile diseases the cells containing ferments increase in number, activating combustion throughout the body.

W. A. BRENNAN.

MEDICAL JURISPRUDENCE

Physician's Right to Sue Employer for Services Performed at His Request for Employee Not Affected by Compensation Law. *Weinreb vs. Harlem Bakery & Lunch Room*, 197 N. Y. Supp., p. 833.

"If the employer hires the physician, it is simply a matter of contract between the physician and employer. If the amount to be paid is stipulated, the physician is entitled to receive that sum. If no amount is named, the physician is entitled to receive the reasonable value of his services. A failure to pay gives rise to a common-law action that may be prosecuted in the courts. There is no more reason for giving the Commission the right to limit or control the sum to be paid under the contract of employment than there would be to require all contracts with employees to be submitted to the Commission to pass upon the reasonableness of the wages agreed to be paid." WILLIAM E. MOONEY.

Surgeon Who Agrees to Perform Operation Does Not Guarantee Results. *Wilson vs. Blair*, 211 Pac. Rep., p. 289.

The plaintiff in this case alleged that in June, 1919, he sustained an injury to the thumb of his left hand which rendered the first joint stiff; that he was a jeweler, skilled in repairing watches, doing engraving and manufacturing jewelry; that he consulted Dr. Blair who, for a valuable consideration, agreed to perform a surgical operation upon the thumb and guaranteed that after the operation the hand would be normally efficient; and that such an operation was performed but that the result was further injury to the thumb and hand. On a trial a verdict of \$5,000 was returned in favor of Wilson. From this an appeal was taken.

"The question presented is: Was there an agreement between plaintiff and defendant, enforceable at law, by which the latter guaranteed and war-

ranted that as a result of such operation the plaintiff's hand would be cured of all defects and rendered 100 per cent efficient? If the contract in question was merely that the defendant was to perform a surgical operation, then the law requires that the defendant possess the skill and learning which is possessed by the average member of the medical profession in good standing in the community in which he resides, and apply that skill and learning with ordinary and reasonable care. He does not become a guarantor of the results of such operation.

"It is apparent that the warranty was made after the agreement to operate and to pay therefor, that the warranty did not become a part of the contract to operate, and that there was no consideration for the warranty. We are of the opinion that the trial court erred in denying the defendant's motion for a nonsuit, that the verdict is against the law, and that the motion for a new trial ought to have been granted."

WILLIAM E. MOONEY.

Responsibility of the Physician in the Case of an X-Ray Burn. *Stemons vs. Turner*, 117 *Atlantic Rep.*, p. 922.

The defendant in this case was an osteopathic physician; Stemons was his patient. In the endeavor to diagnose the latter's complaint the physician made a number of roentgenograms of the affected region. At this point a burn developed, causing pain and suffering. On a trial of the case a judgment was rendered against the physician, and an appeal was taken principally to test out instructions that the physician claimed were erroneous and prejudicial to him. There was nothing in the case which showed that the machine was different from those ordinarily used, or that the physician, through lack of training or otherwise, was incompetent. The issue was therefore limited to whether the physician used the machine negligently or ignorantly. An instruction to the jury that the physician was required to use a high degree of care when the law required him to use only the ordinary care generally exercised under like circumstances, was therefore declared erroneous.

The trial court also instructed the jury generally as follows: "All of the physicians and the X-ray specialists agree that, by a proper and careful use of a certain accepted and well-recognized formula by the profession, which formula has been described, and which you will recall, an X-ray burn could not occur. The defendant says that he used a formula of even less intensity than that. Obviously, therefore, if the defendant did use the formula which he says he did, then his application of the X-ray did not cause an X-ray burn of the plaintiff's groin. However, if you find as a fact that the plaintiff did sustain an X-ray burn of the groin, then you would be justified in concluding that, while the defendant told you that he used the X-ray according to a harmless formula, he was not telling you the truth, and that, on the other hand, the formula

that he did actually use was a negligent and improper formula under the circumstances."

The Supreme Court held that this was not a fair statement of the law. The fact that the jury were instructed, in effect, that because injury resulted, they could draw the inference that the physician did not tell the truth when he said he used less dosage of the X-ray than that which was safe under a well-known formula is not in harmony with the law. The rule as announced leaves out of account the idiosyncrasy of certain persons to the X-ray. That there is such idiosyncrasy and that it cannot be known until after the X-ray has been used, was shown at the trial.

The court unduly stressed the fact that the X-ray is a dangerous instrumentality. This is true also of the surgeon's knife. But if human ills are to be cured, such instrumentalities must be used. "To put upon the medical profession, which must use them, such a burden as financial responsibility for damages if injury or death results, without proof of specific negligence, would drive from the profession many of the very men who should remain in it, because they are unwilling to assume the financial risks." For these and other reasons a new trial was ordered.

WILLIAM E. MOONEY.

Responsibility of the Surgeon in the Case of a Burn from a Hot Water Bag. *Harber vs. Gledhill*, 208 *Pac. Rep.*, p. 111.

Mora Harber was operated upon by the defendants, and after the operation, while she was in an unconscious condition, she was by them taken from the operating table and carried to, and laid on, a bed which contained three hot water bottles. The evidence as to who placed the bottles in the bed is uncertain. It was the duty of the special nurse, employed by the patient, to attend to the nursing of the case and to attend the bed. When the surgeons arrived at the bed, two hot water bottles were observed by them, and the nurse who had accompanied them (not the special nurse) was ordered by the physicians to remove them. Two of them were removed, but the third remained in the bed. Before the patient recovered consciousness her leg was severely burned by the hot water bottle in the bed. In the trial court a judgment was entered against the physicians and the hospital.

The Supreme Court stated: "Had the surgeons done nothing more than perform the operation, had they not assumed the additional task and duty of conveying the patient to her bed and placing her therein, the contention that they would not be liable would be sound. Having undertaken to carry the patient to her bed and putting her in the bed, it was their duty to know that the bed was free from anything that might harm or endanger the helpless patient. They had no right to close their eyes and rely upon some one else to protect the unconscious patient from danger." Accordingly, the judgment was affirmed.

WILLIAM E. MOONEY.

BIBLIOGRAPHY of CURRENT LITERATURE

NOTE.—THE BOLD FACE FIGURES IN BRACKETS AT THE RIGHT OF A REFERENCE INDICATE THE PAGE OF THIS ISSUE ON WHICH AN ABSTRACT OF THE ARTICLE REFERRED TO MAY BE FOUND.

SURGERY OF THE HEAD AND NECK

Head

The old head injury case. J. C. MICHAEL. *J. Am. M. Ass.*, 1923, lxxx, 1047.

A wound of the frontal bone with an infected cerebral hernia: its treatment. C. FERNICOLA. *Semana méd.*, 1923, xxx, 603.

Fibrous osteitis of the skull. N. N. PETROW. *Arch. f. klin. Chir.*, 1923, cxliii, 849.

Lateral sinus thrombosis: two case reports. E. AMBERG. *Grace Hosp. Bull.*, Detroit, 1923, vii, 5.

Furuncles of the face and their treatment. W. HOFMANN. *Arch. f. klin. Chir.*, 1923, cxliii, 51.

Facial autoplasty with skin flaps with long tubed pedicles. P. MOURE. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 372.

Eye

Where the field of the oculist meets that of the practitioner. B. Y. AVIS. *Illinois M. J.*, 1923, xliii, 319.

Considerations upon the cure of pulsating exophthalmos. MATOCCHI. *Arch. ital. di chir.*, 1923, vi, 642.

The rôle of eye strain in headaches. E. DEUTSCH. *Am. J. Clin. Med.*, 1923, xxx, 252.

Heterophoria. L. W. FOX. *Am. J. Ophth.*, 1923, vi, 110. [105]

The transfer of function of the ocular muscles. E. JACKSON. *Am. J. Ophth.*, 1923, vi, 117. [105]

Diminishing accommodation artificially produced. R. F. FRENCH. *J. Iowa State M. Soc.*, 1923, xiii, 135. [105]

Some congenital anomalies of the eye and their confusion with acquired conditions. I. C. MANN. *Lancet*, 1923, cciv, 743.

The laws of heredity in ocular pathology. PREVOT. *Presse méd.*, Par., 1923, xxxi, supp., 372.

Eye pathology of dental origin. W. W. GILL. *Virginia M. Month.*, 1923, 1, 48.

A clinical study of ocular leprosy. F. M. NEVOT. *Prog. de la clin.*, 1923, xxv, 417.

The toxæmic aspect of ocular disease. P. DUNN. *N. York M. J. & Med. Rec.*, 1923, cxvii, 457; *Lancet*, 1923, cciv, 696. [105]

Injections of milk in ocular therapeutics. L. CHEINISSE. *Presse méd.*, Par., 1923, xxxi, 178. [106]

Symphathetic ophthalmia. RUDOLFA and GUIRAL. *Rev. de med. y cirug. de la Habana*, 1923, xxviii, 278.

Malingering—pretended blindness. J. I. KURTZ. *U. S. Naval M. Bull.*, 1923, xviii, 449.

Some curious phenomena of vision and their practical importance. F. W. EDRIEDGE-GREEN. *Med. Press*, 1923, n.s.cxxv, 254. [106]

Quinin amblyopia. J. N. EVANS. *Am. J. Ophth.*, 1923, vi, 271.

Increase of hyperopia in diabetes. W. H. ROBERTS. *Am. J. Ophth.*, 1923, vi, 291.

Causes of bitemporal contraction of the visual field. E. HILL. *Am. J. Ophth.*, 1923, vi, 257.

Visual changes due to sinusitis—report of two cases. W. R. PARKER. *J. Michigan State M. Soc.*, 1923, xxi, 177.

Asthenopic reflex manifestations between the eyes and teeth. W. W. KAHN. *J. Am. M. Ass.*, 1923, lxxx, 1134. [106]

A self-registering campimeter and scotometer. J. W. DOWNEY. *Am. J. Ophth.*, 1923, vi, 281.

Alopecia and poliosis of the eyelids. W. C. POSEY. *J. Am. M. Ass.*, 1923, lxxx, 1204. [107]

Three cases showing retraction of the eyelids. J. COLLIER. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Neurol., 46.

Vernal conjunctivitis of the tarsal form in the giant papillæ cured by radium. M. M. AMAT. *Siglo med.*, 1923, lxx, 234.

Conjunctivitis of anaphylactic origin. H. LAGRANGE. *Presse méd.*, Par., 1923, xxxi, 112. [107]

Trachoma (granular conjunctivitis, chronic ophthalmia) among the Ute Indians. F. C. MYERS. *Northwest Med.*, 1923, xxii, 138.

Coincidence of trachoma and vernal catarrh. L. CORRÉS. *Rev. méd. d. Sevilla*, 1923, xlii, 17.

Solarization in trachoma. J. W. WRIGHT. *Am. J. Ophth.*, 1923, vi, 279. [107]

The regional anatomy of the tear sac. J. M. PATTON. *Ann. Otol., Rhinol. & Laryngol.*, 1923, xxxii, 58.

Indications, contra-indications, and preparation for dacryocystorhinostomy. R. A. FENTON. *Ann. Otol., Rhinol. & Laryngol.*, 1923, xxxii, 67.

The combined intranasal and external operation on the lachrymal sac: Mosher-Toti. H. P. MOSHER. *Ann. Otol., Rhinol. & Laryngol.*, 1923, xxxii, 1.

Dacryorhinocystotomy: combined methods. W. E. SAUER. *Ann. Otol., Rhinol. & Laryngol.*, 1923, xxxii, 25.

Ophthalmomyiasis. A. TICHO. *Brit. J. Ophth.*, 1923, vii, 177.

An epithelial cyst of the cornea. F. POYALES. *Prog. de la clin.*, Madrid, 1923, xxv, 86. [107]

Neuroparalytic keratitis; enucleation without anaesthesia. E. STIEREN. *Atlantic M. J.*, 1923, xxvi, 467.

Siderosis. J. L. GIBSON. *Brit. J. Ophth.*, 1923, vii, 174.

A fixation abscess in a case of severe iridocyclitis. A. GOWLAND and J. A. GALLINO. *Rev. Asoc. méd. argent.*, 1922, xxxv, 788. [107]

The etiology of uveitis. B. CHANCE. *Am. J. Ophth.*, 1923, vi, 284. [107]

Lens antigen to absorb cortical matter. A. E. DAVIS. *Am. J. Ophth.*, 1923, vi, 295.

Immune reaction of the lens. L. HEKTOEN. *Am. J. Ophth.*, 1923, vi, 276. [108]

So-called glassworkers' cataract occurring in other occupations, with a report of two cases. A. W. SICHEL. *Brit. J. Ophth.*, 1923, vii, 161.

On macular perception in advanced cataract. G. YOUNG. Brit. J. Ophth., 1923, vii, 167.

Factors of safety in the operation for cataract. J. GREEN, JR. J. Missouri State M. Ass., 1923, xx, 83.

An etiological study of a series of optic neuropathies. A. C. WOODS and J. R. DUNN. J. Am. M. Ass., 1923, lxxx, 1113.

The diagnosis of optic neuritis due to sinus disease. J. N. HOFFMAN. N. York M. J. & Med. Rec., 1923, cxvii, 42.

Monocular optic neuritis. L. BUCHANAN. Brit. J. Ophth., 1923, vii, 170.

Neurofibroma of the orbit. E. STIEREN. Am. J. Ophth., 1923, vi, 176.

Discussion on the differentiation and prognosis of arteriosclerotic and renal retinitis. H. B. SHAW, R. F. MOORE, P. BARDSEY, and others. Arch. Ophth., 1923, lii, 181.

Retinitis pigmentosa. E. STIEREN. Atlantic M. J., 1923, xxvi, 467.

Lipemia retinalis. H. GRAY and H. F. ROOT. J. Am. M. Ass., 1923, lxxx, 995.

Separation of the retina. RODOLFO DEL CASTELLO. Rev. méd. d. Sevilla, 1923, xlii, 20.

Detachment of the retina in pregnancy nephritis. W. L. BENEDICT and R. D. MUSSEY. Am. J. Ophth., 1923, vi, 268.

Bilateral detachment of the retina in the nephritis of pregnancy; re-attachment of the retina. M. GARDNER. Med. J. Australia, 1923, i, 477.

Hereditary glaucoma simplex (juvenile glaucoma). A. C. SNELL. N. York State J. M., 1923, xxiii, 151.

Fistulization operation for chronic glaucoma. MÁRQUEZ. Arch. de med., cirug. y especial., 1923, xi, an. acad. méd.-quirúrg. españ., 337.

Orbital cellulitis in scarlet fever. W. C. MEANOR. Atlantic M. J., 1923, xxvi, 464.

A case of abscess of the anterior portion of the orbit secondary to maxillary sinusitis of dental origin. GOÉRÉ and GUICHARD. Bull. et mém. Soc. de chir. de Par., 1923, xlix, 208.

Ear

Aural exostosis. F. A. BURTON. Ann. Otol., Rhinol. & Laryngol., 1923, xxxii, 97.

A brief review of otology to the beginning of the nineteenth century. C. H. McCASKEY. J. Indiana State M. Ass., 1923, xvi, 132.

Headache from the standpoint of the otologist. G. W. MACKENZIE. Pennsylvania M. J., 1923, xxvi, 360.

A case of acquired atresia of the auditory meatus. E. LOWRY. Proc. Roy. Soc. Med., Lond., 1923, xvi, Sect. Otol., 20.

The use of a tuning fork stem for both air and bone conduction in the Rinne test. R. SONNENSCHNEN and J. P. MINTON. Ann. Otol., Rhinol. & Laryngol., 1923, xxxii, 85.

The Iowa pitch-range audiometer and its uses. C. E. SEASHORE. Laryngoscope, 1923, xxxiii, 295.

A study of the tonal ranges in lesions of the acoustic nerve and its end organ. L. W. DEAN and C. C. BUNCH. Laryngoscope, 1923, xxxiii, 309.

A case of complete nerve deafness due to syphilis of the internal ears; caloric and rotation tests negative, galvanic positive. J. DUNDAS-GRANT. Proc. Roy. Soc. Med., Lond., 1923, xvi, Sect. Otol., 16.

A study of the reinforcement of sound by means of the Schaefer resonators. J. P. MINTON and R. SONNENSCHNEN. Ann. Otol., Rhinol. & Laryngol., 1923, xxxii, 45.

The practical diagnostic value of tests of the vestibular mechanism. F. L. DENNIS. Ann. Otol., Rhinol. & Laryngol., 1923, xxxii, 160.

Ossification of the incus to the tegmen. S. SCOTT. Proc. Roy. Soc. Med., Lond., 1923, xvi, Sect. Otol., 20.

Notes on otosclerosis. S. CESAR DE SILVA. Brazil-med., 1923, xxxvii, 60.

Some notes on the management of the common complaints of the ear, nose, and throat in troops on active service; with a consideration of the relationship which should exist between the specialist and the medical officer. P. G. GOLDSMITH. Mil. Surgeon, 1923, lii, 343.

The endocrines in otolaryngology. S. M. WILSON. N. York M. J. & Med. Rec., 1923, cxvii, 425.

The treatment of deafness and tinnitus. H. HAYES. N. York State J. M., 1923, xxiii, 157.

A case of vertigo simulating "Ménière's disease," with anomalous nystagmus reactions. J. DUNDAS-GRANT. Proc. Roy. Soc. Med., Lond., 1923, xvi, Sect. Otol., 20.

A case of vertigo with fixation of the ossicles cured by ossiculotomy. J. DUNDAS-GRANT. Proc. Roy. Soc. Med., Lond., 1923, xvi, Sect. Otol., 18.

Nicotine poisoning of the middle ear: a preliminary report based upon animal experimentation and microscopic findings. O. GLOGAU. Laryngoscope, 1923, xxxiii, 262.

Diphtheritic otitis media. W. J. MELLINGER. California State J. M., 1923, xxi, 151.

A case of otitis media with facial palsy following scarlet fever; specimens (malleus and incus) shown. F. J. CLEMINSON. Proc. Roy. Soc. Med., Lond., 1923, xvi, Sect. Otol., 17.

Otitis media and mastoiditis. M. ARMAND-UGON. Rev. méd. d. Uruguay, 1923, xxvi, 125.

Chronic suppurative otitis media. H. E. BOZER. Ann. Otol., Rhinol. & Laryngol., 1923, xxxii, 277.

The treatment of otitis media with tuberculin. G. THOMSEN VON COLDITZ. Ann. Otol., Rhinol. & Laryngol., 1923, xxxii, 149.

Labyrinthitis as a complication of middle-ear suppuration. (Abstract.) A. L. TURNER and J. S. FRASER. Proc. Roy. Soc. Med., Lond., 1923, xvi, Sect. Otol., 15.

The radical operation in chronic suppurative otitis media: a consideration of the technique. The use of the primary skin graft and the result of the operation with particular reference to the function of the organ. E. B. DENCH. Laryngoscope, 1923, xxxiii, 241.

A case of polyarthritides complicating mastoiditis: operation, recovery. D. ROY. Ann. Otol., Rhinol. & Laryngol., 1923, xxxii, 129.

Consideration of the radical mastoid. C. M. SAUTTER. Ann. Otol., Rhinol. & Laryngol., 1923, xxxii, 118.

Parotid fistula following mastoid operations. N. PATTERSON. Proc. Roy. Soc. Med., Lond., 1923, xvi, Sect. Otol., 19.

Nose

Reconstruction of the entire tip of the nose. NIOSI. Arch. ital. di chir., 1923, vi, 656.

The correction of nasal deformities associated with harelip and cleft palate. W. B. DAVIS. J. Med. Soc. N. Jersey, 1923, xx, 113.

Rhinoplasty from the skin of the breast. K. STEINTHAL. Zentralbl. f. Chir., 1923, l, 508.

The problem of obscure nose and throat affections. E. A. LOOPER. South. M. J., 1923, xvi, 298.

Compensatory nasal growths. J. A. PRATT. Ann. Otol., Rhinol. & Laryngol., 1923, xxxii, 211.

A nasal drill for the removal of a septal spur. H. H. YOUNG. J. Am. M. Ass., 1923, lxxx, 1216.

Epithelioma of the nasal septum, the floor of both nostrils, the alveolar surface of the upper jaw, and the left side of the upper jaw. A. WYLIE. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Laryngol., 30.

A case of œdema of the septum in association with nasal polypi. A. J. WRIGHT. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Laryngol., 27.

A new septal chisel. S. L. OLSHO. *Laryngoscope*, 1923, xxxiii, 308.

The rôle of transillumination in diseases of the nasal accessory sinuses. E. L. PRATT. *J. Am. M. Ass.*, 1923, lxxx, 1121.

The radical frontal sinus operation, with report of cases. F. O. LEWIS. *Ann. Otol. Rhinol. & Laryngol.*, 1923, xxxii, 305.

A new frontal sinus instrument. J. A. HAGEMANN. *N. York M. J. & Med. Rec.*, 1923, cxvii, 480.

A new technique for the positive identification of the sphenoid sinus and the ethmoid cells. A. GRANGER. *J. Radiol.*, 1923, iv, 105. [110]

The intracranial complications of suppurative sphenoid sinus disease. C. F. YERGER. *Illinois M. J.*, 1923, xliii, 304.

Two cases of empyema of the maxillary sinus of dental origin; alveolar fistula; radical and plastic operation. J. L. MAYBAUM. *Ann. Otol. Rhinol. & Laryngol.*, 1923, xxxii, 273.

The complications of paranasal sinus disease in infants and young children. L. W. DEAN. *Ann. Otol. Rhinol. & Laryngol.*, 1923, xxxii, 285.

The end-results of radical operations on the accessory sinuses. R. H. SKILLERN. *Ann. Otol. Rhinol. & Laryngol.*, 1923, xxxii, 139.

A simple knot for intranasal sutures. W. JOHNSTON. *Ann. Otol. Rhinol. & Laryngol.*, 1923, xxxii, 201.

Chronic catarrh of the nasopharynx. D. J. G. WISHART. *Laryngoscope*, 1923, xxxiii, 267. [110]

Mouth

Oral focal infection and its relation to the physician. W. H. HYDE. *Internat. J. Orthodont., Oral Surg. & Radiography*, 1923, ix, 208.

Correct radiographic technique and interpretation in its relation to the elimination of oral pathologic foci. F. F. MOLT. *Dental Cosmos*, 1923, lxxv, 341.

Arsphenamine treatment of spirochætic gingivitis. J. A. KOLMER. *Am. J. Clin. Med.*, 1923, xxx, 243.

Notes on our present knowledge of spirochætal stomatitis, with special reference to the disease as it affects the troops. D. CLEWER. *J. Roy. Army Med. Corps*, Lond., 1923, xl, 285.

Ranula. H. W. THOMAS. *Dental Cosmos*, 1923, lxxv, 350.

Oral sepsis and its relation to arthritis. L. J. LLEWELLYN. *Med. Press*, 1923, n.s. cxv, 234, 258, 276.

A case of simple harelip: a new method of operating. ARQUELLADA. *Pediat. españ.*, 1923, xii, 95.

Reasons for operations in early infancy on cleft lip and cleft palate. S. L. SILVERMAN. *J. Med. Ass. Georgia*, 1923, xii, 143.

The operation for complicated harelip. C. RAMSTEDT. *Zentralbl. f. Chir.*, 1922, xlix, 1556. [111]

Maxillo-facial restoration, surgical and prosthetic. S. D. RUGGLES. *Dental Cosmos*, 1923, lxxv, 394.

Report of a cured case of ankylosis of the jaw. W. G. STERN. *Ohio State M. J.*, 1923, xix, 248.

Bone transplants in the mandible. CAVINA. *Arch. ital. di chir.*, 1923, vi, 662.

The treatment of fracture of the mandible. SOLARI. *Arch. ital. di chir.*, 1923, vi, 663.

Ununited fracture of the lower jaw with or without loss of bone. F. H. ALBEE. *Surg. Clin. N. Am.*, 1923, iii, 301.

A splint for the treatment of fracture of the maxilla. L. SCHOENBAUER and V. ORATOR. *Zentralbl. f. Chir.*, 1923, l, 518.

Malignant adamantinoma and central epithelial tumors of the jaw. G. WEISSENFELS. *Vierteljahrsschr. f. Zahnheilk.*, 1922, xxxviii, 56.

Plastic surgery of the jaw and the hard palate. A. LUX-ENBURGER. *Deutsche Ztschr. f. Chir.*, 1922, clxxii, 384. [111]

Secondary parotitis. F. L. HUGHES. *Hahneman. Month.*, 1923, lviii, 220.

On the so-called mixed tumors of the parotid. R. S. MCCRADIE. *J.-Lancet*, 1923, xliii, 173.

A clinical and anatomic-pathologic study of a large tumor of the parotid. CALABRESE. *Arch. ital. di chir.*, 1923, vi, 695.

Temporary exclusion of the parotid by radiation in the treatment of salivary fistula. F. W. KAESS. *Zentralbl. f. Chir.*, 1923, l, 14.

Report of two cases of salivary calculus. A. W. PROETZ. *Ann. Otol. Rhinol. & Laryngol.*, 1923, xxxii, 233.

Lithiasis of the right submaxillary gland with a cervical diverticulum containing two calculi; ablation of the gland and calculi; drainage of the diverticulum; recovery. DE RIO BLANCO. *Bull. et. mém. Soc. de chir. de Par.*, 1923, xlix, 379.

Carcinoma of the tongue. H. KUETTNER. *Therap. d. Gegenw.*, 1922, lxiii, 444. [112]

A new method for the oral application of radium. A. MOSCARIELLO. *Ann. ital. di chir.*, 1923, ii, 286.

A case of congenital perforate soft palate and double uvula, with repair of a perforation. J. H. TRINDER. *Med. Press*, 1923, n.s. cxv, 339.

The use of the delayed flap in secondary operations on the palate and antrum. G. B. NEW. *Minnesota Med.*, 1923, vi, 214.

The co-operation that must exist between the physician and dentist in order to eradicate disease originating from oral infections. H. J. MCKEAN. *Dental Cosmos*, 1923, lxxv, 358.

The relation of focal infection to endocrine disturbance. B. R. TUCKER. *Dental Cosmos*, 1923, lxxv, 373.

The technique of oral radiography. C. O. SIMPSON. *Internat. J. Orthodont., Oral Surg. & Radiography*, 1923, ix, 313.

Grading pulpless teeth. H. R. RAPER. *Internat. J. Orthodont., Oral Surg. & Radiography*, 1923, ix, 305.

Surgical considerations of pulpless teeth. C. J. LYONS and U. G. RICKERT. *Internat. J. Orthodont., Oral Surg. & Radiography*, 1923, ix, 288.

Streptococcus viridans not the primary factor in periapical abscess. A. B. DONAWA. *Dental Cosmos*, 1923, lxxv, 389.

A case of dentigerous cyst. M. VLASTO. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Laryngol., 43.

Certain limitations in the use of appliances in orthodontia. O. A. OLIVER. *Internat. J. Orthodont., Oral Surg. & Radiography*, 1923, ix, 265.

Throat

An analysis of some cases of tubercles in the tonsils. W. V. MULLIN. *J. Am. M. Ass.*, 1923, lxxx, 1211.

A clinical and pathologic study of tonsils subjected to the X-ray. C. R. C. BORDEN. *Boston M. & S. J.*, 1923, clxxxviii, 493. [113]

Hypertrophy of the tonsils and roentgen therapy. R. VAQUER. *Prog. de la clin.*, Madrid, 1923, xxv, 464.

Prompt action of radium radiations in the treatment of small or large infected tonsils and lingual tonsils. F. H. WILLIAMS. Boston M. & S. J., 1923, clxxxviii, 497. [113]

Report of a case of tonsillar cyst which protruded from the tonsil as a pedunculated tumor. A. W. PROETZ. Ann. Otol., Rhinol. & Laryngol., 1923, xxxii, 223.

Electrocoagulation of tonsils. T. H. PLANK. Med. Herald, 1923, xlii, 113.

Tonsillectomy in adults under local anæsthesia. J. J. KING. Internat. J. Surg., 1923, xxxvi, 141.

Precautions to be taken after the tonsil operation. H. HAYS. Med. Times, 1923, li, 100.

The after-results of the different methods of tonsillectomy, with special reference to the La Force as compared with the ordinary dissection with the snare: A critical review of 200 cases. R. PATTERSON. Laryngoscope, 1923, xxxiii, 280.

Unsuccessful tonsil and adenoid operations. A. J. M. WRIGHT. Bristol M.-Chir. J., 1923, xl, 84.

The treatment of Ludwig's phlegmon by excision of the submaxillary gland. E. REHN. Klin. Wchnschr., 1922, i, 2138. [113]

A case of pharyngeal pouch. A. RYLAND. Proc. Roy. Soc. Med., Lond., 1923, xvi, Sect. Laryngol., 41.

Two pharyngeal tumors. O. KUTVIRT. Časop. lék. česk., 1922, lxi, 589. [114]

Surgical diathermy in the treatment of malignant disease of the throat. W. S. SYME. Glasgow M. J., 1923, n.s.xvii, 221.

Neck

Two cases of descending retro-œsophageal abscess with phlegmon of the neck and threatening mediastinitis; external operation through the vascular route; prophylactic collar mediastinotomy; recovery. O. GLOGAU. Laryngoscope, 1923, xxxiii, 209.

Sinuses and swellings in the necks of children. G. MORGAN. Brit. M. J., 1923, i, 621. [114]

Congenital tumors of the neck. P. DELBET. Med. Press, 1923, n.s.cxxv, 319.

An obscure cervical growth. W. MERCER. Brit. J. Surg., 1923, x, 576.

A case of tumor of the cervical region—paraganglioma. BÉGOIN, BONNARD, and PIÉCHAUD. J. de méd. de Bordeaux, 1923, xcv, 266.

The enlarged thymus gland from the viewpoint of the laryngologist. L. HUBERT. N. York M. J. & Med. Rec., 1923, cxvii, 410.

Fifteen cases of thymectomy in nurslings. A. MARIQUE. Arch. franco-belges de chir., 1923, xxvi, 127. [114]

Present-day consideration of the thyroid. J. B. HAEBERLIN. N. York M. J. & Med. Rec., 1923, cxvii, 493.

The probable normal and pathological physiology of the thyroid. J. ROGERS. N. York M. J. & Med. Rec., 1923, cxvii, 393.

The physiological and pathological importance of the thyroid secretion. H. STANLEY-JONES. N. York M. J. & Med. Rec., 1923, cxvii, 389.

Basal metabolism. C. E. ERVIN. Atlantic M. J., 1923, xxvi, 429.

A comparison of the basal metabolic rate with the histopathology in thyroid dysfunction. J. B. RUCKER. N. York M. J. & Med. Rec., 1923, cxvii, 398.

Basal metabolism: its application to disorders of the thyroid. S. D. CONKLIN. Atlantic M. J., 1923, xxvi, 431.

The relation of the basal metabolic rate to diseases of the thyroid gland. A. S. JACKSON and R. H. JACKSON. Am. J. Surg., 1923, xxxvii, 86. [114]

A symposium on thyroid diseases. E. T. BELL, H. L. ULRICH, N. O. PEARCE, and others. J.-Lancet, 1923, xliii, 155.

Thyroid disease. A. C. ROOPE. J. Indiana State M. Ass., 1923, xvi, 125.

Deficient thyroid influence in children, with the presentation of a case after eight years' treatment. C. E. ILIFF. Cincinnati J. M., 1923, iv, 92.

A clinical consideration of some phases of disease of the thyroid gland. W. D. HAINES. Cincinnati J. M., 1923, iv, 98.

A clinical and pathological study of fifty cases of hyperthyroidism. R. B. HILL. California State J. M., 1923, xxi, 163.

Hyperthyroidism. T. G. MOORHEAD. Brit. M. J., 1923, i, 595.

Discussion of symposium on goiter. S. J. WATERWORTH, L. G. COLE, C. H. FRAZIER, and others. Atlantic M. J., 1923, xxvi, 519.

Discussion of symposium on goiter. L. LITCHFIELD, H. D. JUMP, A. E. ROUSSEL, G. W. REESE, and D. MARINE. Atlantic M. J., 1923, xxvi, 442.

The treatment and prophylaxis of goiter. J. WAGNER-JAUREGG. Wien. klin. Wchnschr., 1923, xxxvi, 139.

The goiter of adolescence. J. SELINGER. N. York M. J. & Med. Rec., 1923, cxvii, 399.

The prevention and treatment of simple goiter. D. MARINE. Atlantic M. J., 1923, xxvi, 437.

Adenomatous goiter. C. B. NOECKER. Atlantic M. J., 1923, xxvi, 434.

Colloid goiter. M. J. NOONE. Atlantic M. J., 1923, xxvi, 436.

Endemic goiter and cretinism, and their prophylaxis. G. HOTZ. Klin. Wchnschr., 1922, i, 2073. [115]

Intratracheal struma. L. PUHR. Beitr. z. path. Anat. u. z. allg. Path., 1922, lxx, 474.

The treatment of parenchymatous goiter with the X-ray. H. WEBER. Strahlentherapie, 1922, xiv, 642.

Exophthalmic goiter. L. A. SHERIDAN. Atlantic M. J., 1923, xxvi, 435.

Atypical exophthalmic goiter. I. BRAM. Illinois M. J., 1923, xliii, 311.

The structure of goiter, with particular reference to Basedow's disease. A. TROELL. Foerh. Svens. Laek.-Saellsk. Sammark., 1922, xlviii, 125. [115]

Basedow's disease; its pathogenesis and treatment. J. KOOPMAN. Vlaamische geneesk. Tijdschr., 1923, iv, 2.

Studies of exophthalmic goiter and the involuntary nervous system. III. A study of fifty consecutive cases of exophthalmic goiter. L. KESSEL, C. C. LIEB, H. T. HYMAN, and H. LANDE. Arch. Int. Med., 1923, xxxi, 433. [116]

The pulse pressure in exophthalmic goiter. I. HARRIS. Brit. M. J., 1923, i, 630.

Studies of Graves's syndrome and the involuntary nervous system. II. The clinical manifestations of disturbances of the involuntary nervous system (autonomic imbalance). L. KESSEL and H. T. HYMAN. Am. J. M. Soc., 1923, clxv, 513.

The pathogenesis and treatment of exophthalmic goiter in the light of our present knowledge. A. GORDON. N. York M. J. & Med. Rec., 1923, cxvii, 385.

Report of a case of acute exophthalmic goiter treated successfully by the use of the X-ray. M. D. MAGEE. Virginia M. Month., 1923, i, 37.

Alcohol injection in the treatment of exophthalmic goiter. P. PAJZS. Zentralbl. f. Chir., 1923, i, 472.

The mortality in the surgery of exophthalmic goiter. J. DE J. PEMBERTON. Surg., Gynec. & Obst., 1923, xxxvi, 458.

The results of treatment in 100 consecutive cases of hyperthyroidism. H. A. FREUND. N. York M. J. & Med. Rec., 1923, cxvii, 395.

The surgical management of patients with goiter. W. D. HAINES. J. Am. M. Ass., 1923, lxxx, 984.

Goiter and its treatment. E. ROOS. Med. Klin., 1923, xix, 451.

The surgical management of goiterous patients. W. D. HAINES. Chicago Med. Rec., 1923, xlv, 619.

Twenty-two years of goiter surgery. K. URBAN. Zentralbl. f. Chir., 1923, l, 86. [116]

Should one close the wound immediately in goiter operations? O. ORTH. Zentralbl. f. Chir., 1923, l, 16.

Ligation of the inferior thyroid artery. J. L. DECOURCY. Ann. Surg., 1923, lxxvii, 397.

Extirpation of an enormous solid tumor of the thyroid. C. LACCETTI. Ann. ital. di chir., 1923, ii, 290.

Recent developments in parathyroid therapy. H. W. C. VINES. N. York M. J. & Med. Rec., 1923, cxvii, 412.

Tumors of the parathyroid glands and their relation to osteomalacia. B. STRAUCH. Frankfurt. Ztschr. f. Path., 1922, xxviii, 319.

A laryngeal case submitted for diagnosis. H. SMURTHWAITE. Proc. Roy. Soc. Med., Lond., 1923, xvi, Sect. Laryngol., 31.

A case of hoarseness due to singer's nodes. J. DUNDAS-GRANT. Proc. Roy. Soc. Med., Lond., 1923, xvi, Sect. Laryngol., 44.

A cystic laryngeal growth. A. WYLIE. Proc. Roy. Soc. Med., Lond., 1923, xvi, Sect. Laryngol., 44.

Operative procedures in the treatment of stenosis of the larynx caused by bilateral paralysis of the abductor muscles, with special reference to a new method by means of which it is suggested that the airway may be permanently enlarged and the patient decannulated. I. MOORE. Proc. Roy. Soc. Med., Lond., 1923, xvi, Sect. Laryngol., 32.

A plastic operation on the larynx for bilateral laryngeal paralysis. E. STREISSLER. Beitr. z. klin. Chir., 1923, cxxviii, 580.

The treatment of carcinoma of the larynx by operation and by radiation. A. G. TAPIA. Clin. y lab., 1923, i, 333.

The influence of local anaesthesia on the mortality rate of laryngectomy. J. ADAM. Glasgow M. J., 1923, n.s. xvii, 219.

The importance of infection during laryngectomy, and a contribution to the technique of this operation. A. PŘECECHTEL. Acta oto-laryngol., 1922, iv, 352.

The clinical aspect of branchial cysts. H. BAILEY. Brit. J. Surg., 1923, x, 565.

SURGERY OF THE NERVOUS SYSTEM

Brain and Its Coverings; Cranial Nerves

Depravity after head injury. VON RAD. Med. Klin., 1923, xix, 201.

Traumatic cerebral hernia. SORRENTINO. Arch. ital. di chir., 1923, vi, 663.

The symptoms and treatment of traumatic cyst of the ventricle. WAGNER. Deutsche Ztschr. f. Chir., 1923, clxxvii, 196.

Osteomalacia with epilepsy. A. BRENNER. Deutsche Ztschr. f. Chir., 1922, clxxvi, 66.

The importance of protein hypersensitivity in the diagnosis and treatment of a special group of epileptics. R. L. M. WALLIS, W. D. NICOL, and M. CRAIG. Lancet, 1923, cciv, 741.

Can true epilepsy be cured or improved by roentgen treatment? M. STEIGER. Schweiz. med. Wchnschr., 1922, lii, 1141. [117]

The poor results of operation on the adrenals in epilepsy. H. KUETTER and R. WOLLENBERG. Zentralbl. f. Chir., 1923, l, 430.

The repair of defects in the dura and skull, with particular attention to the permanent results in the prevention and cure of traumatic epilepsy by repair of the dura by free transplantation of fatty tissue. P. DREVERMANN. Beitr. z. klin. Chir., 1922, cxxvii, 674. [117]

The control of ventricular puncture through encephalography. G. GABRIEL. Zentralbl. f. inn. Med., 1922, xliii, 841.

A modification of the technique of diagnostic pneumo-encephalic insufflation. J. THURZO. Orvosi hetil., 1922, lxvi, 469.

Hydatid cysts of the brain in children. R. A. RIVAROLA. Semana méd., 1923, xxx, 157. [117]

Accidental injury limited to the base of the left frontal convolution, and motor aphasia. A. M. FIAMBERT. and G. FILIPPINI. Reforma med., 1923, xxxix, 416.

A case of motor aphasia secondary to a lesion of the base of the left third frontal convolution (Broca's convolution). SIMEONT. Arch. ital. di chir., 1923, vi, 666.

Syphilis of the metencephalon appearing as the ponto-cerebellar form. G. GUILLAIN, T. ALAJOUANINE, and R. MARQUÉZY. Bull. et. mém. Soc. méd. d. hôp. de Par., 1923, 3s., xxxix, 605.

Brain abscess of the temporo-sphenoidal lobe complicating acute mastoiditis; operation; recovery. E. G. GILL. Virginia M. Month., 1923, l, 51.

Cerebral uræmia. A. LEMIERRE. Arch. d. mal. d. reins et d. organes génitaux-urinaires, 1923, i, 433.

Cerebral tumor. T. DEMARTEL. Bull. et mém. Soc. de chir. de Par., 1923, xlix, 369.

Intracranial tumors and the occurrence of papilloedema. A. E. ILES. Bristol M.-Chir. J., 1923, xl, 94.

Tumor of the parietal lobe. T. FRACASSI. Rev. méd. d. Rosario, 1923, xiii, 12.

Brain tumors in young children: a clinical and pathological study. M. WOLLSTEIN and F. H. BARTLETT. Am. J. Dis. Child., 1923, xxv, 257.

A case of tumor of the cerebellum that gave negative results to tests of the labyrinth and labyrinthine tract. B. ROSENBLUTH. Laryngoscope, 1923, xxxiii, 257. [118]

Localized symptoms from a lesion of the left parietal lobe: observations in a case of brain tumor treated by palliative decompression. O. POETZL. Med. Klin., 1923, xix, 7. [118]

The physiology and pathology of the pituitary body. A. BIEDL. Munich: Bergmann, 1922. [118]

A case of Froelich's syndrome with bitemporal reduction of the visual fields. M. M. AMAT. Siglo méd., 1923, lxx, 335.

Some observations on papilloneuritis in children with hypophyseal syndromes and its treatment with hypophyseal and thyroid extracts. F. M. URRRA. Españ. med., 1923, xiv, 7.

Pituitary tumors. F. C. GRANT. N. York M. J. & Med. Rec., 1923, cxvii, 419.

Some neurological and therapeutic aspects of hypophyseal tumors. I. H. PARDEE. N. York M. J. & Med. Rec., 1923, cxvii, 415.

An anatomic-clinical study of a case of chronic epidemic encephalitis with the Parkinson syndrome. R. VEGNI. Policlin., Rome, 1923, xxx, sez. chir., 195.

Encephalitis lethargica (epidemic encephalitis). A. J. HALL. Lancet, 1923, cciv, 731.

Lethargic encephalitis (epidemic): report of four cases with residual symptoms. W. S. KERLIN. N. Orleans M. & S. J., 1923, lxxv, 600.

The frequency and importance of some of the symptoms of lethargic encephalitis. R. MONTAUD. Med. Ibera, 1923, vii, 361.

Ocular disturbances as the first symptoms of lethargic encephalitis. M. M. AMAT. Siglo méd., 1923, lxx, 356.

Further observations on epidemic encephalitis; with especial reference to mental symptoms, loss of abdominal reflexes, and myoclonus. I. S. WECHSLER. N. York M. J. & Med. Rec., 1923, cxvii, 458.

Late symptoms of epidemic encephalitis. A. BORGERINI. Policlin., Rome, 1923, xxx, sez. med., 165.

The sequelæ of epidemic encephalitis in childhood, with notes on the prognosis as regards complete recovery. G. H. ANDERSON. Quart. J. Med., 1923, xvi, 173.

The treatment of epidemic encephalitis with intravenous injection of Pregl's solution. NATALI and CAMPANACCI. Sperimentale, 1922, lxxvi, 419.

The characteristics of the cerebrospinal fluid in post-diphtheritic paralysis. J. C. REGAN, C. REGAN, and B. WILSON. Am. J. Dis. Child., 1923, xxv, 284.

Modifications of cerebrospinal fluid pressure in cranio-cerebral trauma. G. C. SEGAL. Arch. ital. di chir., 1923, vi, 664.

Internal hæmorrhagic pachymeningitis in infancy: report of five cases. C. W. BURHANS and H. J. GERSTENBERGER. J. Am. M. Ass., 1923, lxxx, 604.

Cervical hypertrophic pachymeningitis. LAFORA. Arch. de med., cirug. y especial., 1923, x, an. acad. med.-quirurg. españ., 245.

The symptoms and laboratory findings in the classification, prognosis, and treatment of otitic meningitis. H. ABOULKER. Presse méd., 1923, xxxi, 342.

Meningitis due to Pfeiffer's bacillus. E. N. BUTLER. Brit. M. J., 1923, i, 719.

Secondary malignant disease of the leptomeninges: meningitis carcinomatosa. (Collective Review.) Med. Sc. Abst. & Rev., 1923, viii, 23.

A case of intracranial aerocele with pneumococcal meningitis. W. WHEELER and E. C. SMITH. Med. Press, 1923, n.s.cxv, 276.

Traumatic facial diplegia, with involvement of the sixth nerve, a portion of the left third nerve, also the fifth and eighth nerves, with dislocation of the atlas, etc. G. F. KEIPER. Ann. Otol., Rhinol. & Laryngol., 1923, xxxii, 236.

The treatment of trigeminal neuralgia with alcohol injections. D. KULENKAMPPF. Zentralbl. f. Chir., 1923, l, 50.

The injection of alcohol into the gasserian ganglion followed by widespread cranial nerve paralysis and the loss of an eye. Brit. J. Surg., 1923, x, 573.

Operation in two stages in the intracranial surgery of the trigeminal nerve. J. VILLETTE. Bull. et mém. Soc. de chir. de Par., 1923, xlix, 527.

A case of unilateral affection of cranial nerves 9-12 (Tapia's syndrome) associated with chronic otitis media. C. P. SYMONDS. Proc. Roy. Soc. Med., Lond., 1923, xvi, Sect. Neurol., 53.

A case of unilateral affection of cranial nerves 7, 9, 10, 11, and 12. C. P. SYMONDS. Proc. Roy. Soc. Med., Lond., 1923, xvi, Sect. Neurol., 52.

An examination of the spinal accessory nerves from a case of bilateral acquired spasmodic torticollis. C. M. BYRNES. Bull. John Hopkins Hosp., Balt., 1923, xxxiv, 125.

Spinal Cord and Its Coverings

Paraplegic accidents from tuberculous meningitis appearing long after a wound of the spine. L. TARVERNIER. Bull. et mém. Soc. de chir. de Par., 1923, xlix, 139.

A case of syringomyelia. S. A. K. WILSON. Proc. Roy. Soc. Med., Lond., 1923, xvi, Sect. Neurol., 49.

A case of syringomyelia with much sensory and motor impairment and little wasting. C. M. H. HOWELL. Proc. Roy. Soc. Med., Lond., 1923, xvi, Sect. Neurol., 50.

The roentgen findings in tumors of the spinal cord. M. SCALITZER and ST. JATROU. Mitt. a. d. Grenzgeb. d. Med. u. Chir., 1922, xxxv, 598. [119]

A case of psammona affecting the spinal cord and mid-brain. A. G. HARSANT. J. Roy. Army Med. Corps, Lond., 1923, xl, 297.

Peripheral Nerves

Union of the nerve of the rat in parabiosis. MORPURGO. Arch. ital. di chir., 1923, vi, 656.

Recurrent paralysis from hysterical injury. TRIVAS. Presse méd., Par., 1923, xxxi, 356.

On the clinical identification of pathologic changes in the size of nerves. E. F. CYRIAX. Med. Press, 1923, n.s.cxv, 296.

A case of hypertrophic peripheral neuritis with recovery. F. G. HOBSON. Lancet, 1923, cciv, 798.

A simple method for demonstrating motor paralysis of the lower extremities, with special reference to Hoover's sign. T. B. THROCKMORTON. J. Am. M. Ass., 1923, lxxx, 1058.

The treatment of injuries of the peripheral nerves. P. J. STRADYN. Verhandl. d. Russ. Chir. Pirogoff-Ges., Petrograd, 1922. [119]

The operative technique in injuries of peripheral nerves. W. R. CHESSIN. Nowy Chir. Arch., 1922, ii, 332. [120]

Regeneration of nerves in cicatricial tissue. W. M. NASAROW. Verhandl. d. Russ. Chir. Kongr., Petrograd, 1922.

A new contribution upon contralateral nerve transplants. D. MARAGLIANO. Arch. ital. di chir., 1923, vi, 709.

The etiology of neurofibromatosis. M. A. ROSENTUL. Astrachanski Med. Westnik, 1922, i, 144. [120]

The pathogenesis of tropho-neurotic skin and bone changes and a new attempt at their surgical treatment. A. G. MOLOTKOFF. Verhandl. d. Russ. Chir. Pirogoff-Ges., Petrograd, 1922. [120]

Sympathetic Nerves

The etiology and treatment of perforating ulcer of the foot, with remarks on sympathetomy. M. KAPPIS. Klin. Wchnschr., 1922, i, 2558. [121]

Peri-arterial sympathetomy in spontaneous gangrene. W. N. SCHAMOFF. Westnik Chir. i pogram. oblasti, 1922, i, 183. [121]

Vasosympathetomy in presenile gangrene. CALANDRA. Arch. ital. di chir., 1923, vi, 696.

Miscellaneous

A new needle for lumbar puncture, of value for encephalographic research. L. BENEDEK. Arvosi hetil., 1922, lxvi, 469.

Lumbar puncture. M. PAPPENHEIM. Wien: Rikola, 1922.

Lumbar spinal puncture and cisternal puncture. J. J. KEEGAN and T. E. RIDDELL. Nebraska State M. J., 1923, viii, 128. [122]

On the danger of leakage of the cerebrospinal fluid after lumbar puncture. S. INGVAR. *Acta med. Scand.*, 1923, lviii, 67. [123]

The leakage of the spinal fluid after lumbar puncture and its treatment. H. C. JACOBÆUS and K. FRUMERIE. *Acta med. Scand.*, 1923, lviii, 102. [123]

SURGERY OF THE CHEST

Chest Wall and Breast

Generalized emphysema from a lesion of the thorax. SERAFINI. *Arch. ital. di chir.*, 1923, vi, 658.

Demonstration of two cases of extensive thoracoplasty. BRAUER. *Ztschr. f. Krankenhpf.*, 1922, xlv, 309.

Has thoracoplasty a place in therapeutics? G. LIEBE. *Ztschr. f. aerzt.-soz. Versorgungsw.*, 1922, ii, 301.

Suppurative arthritis simulating acute appendicitis. J. A. BERRY. *Lancet*, 1923, cciv, 486. [124]

The so-called hernia in the mammary areola. G. L. MOENCH. *Am. J. Obst. & Gynec.*, 1923, v, 394.

Hyperplasia of epithelial and connective tissue in the breast: its relation to fibro-adenoma and other pathologic conditions. G. L. CHEATLE. *Brit. J. Surg.*, 1923, x, 436.

The clinical picture of dilated ducts beneath the nipple frequently to be palpated as a doughy, worm-like mass; the varicocele tumor of the breast. J. C. BLOODGOOD. *Surg., Gynec. & Obst.*, 1923, xxxvi, 486. [124]

Tumors of the male breast. H. P. LEOPOLD. *Hahneman. Month.*, 1923, lviii, 233.

Radium in carcinoma of the breast; a necessary pre-operative routine. G. S. WILLIS. *N. York M. J. & Med. Rec.*, 1923, cxvii, 453.

Operative treatment of cancer of the breast. LE DENTU. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 125.

Local recurrence after operations for carcinoma of the breast. L. VON CZIRER. *Zentralbl. f. Chir.*, 1923, l, 7.

Postoperative swelling of the upper extremity following operations on the breast and axilla. W. E. HARTSHORN. *Boston M. & S. J.*, 1923, clxxxviii, 477.

Trachea, Lungs, and Pleura

Diseases of the respiratory system. (Collective Review.) *Med. Sc. Abst. & Rev.*, 1923, viii, 3.

Foreign bodies of unusual interest removed from the air passages. P. P. VINSON. *Minnesota Med.*, 1923, vi, 260.

Syphilis of the upper air passages. B. M. KULLY. *Nebraska State M. J.*, 1923, viii, 138.

The choice of tracheal cannula. P. J. MINK. *Arch. f. klin. Chir.*, 1923, cxxiii, 516.

Spontaneous subclavicular hernia of the left lung. MAUCLAIRE and FAURE-BEAULIEU. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 313.

The determination of lung volume without forced breathing. D. D. VAN SLYKE and C. A. L. BINGER. *J. Exper. Med.*, 1923, xxxvii, 457.

Observations on the total lung volume and blood flow following pneumectomy. W. D. W. ANDRUS. *Bull. John Hopkins Hosp.*, Balt., 1923, xxiv, 119.

Idiopathic spontaneous pneumothorax apparently non-tuberculous. I. S. KAHN. *J. Am. M. Ass.*, 1923, lxxx, 1060.

Two cases of recurrence of spontaneous pneumothorax showing, on thorascopic examination, the site of the perforation on the lung. H. DAHLSTEDT and M. HAEGER. *Acta med. Scand.*, 1923, lviii, 43.

A detail of technique in treatment by artificial pneumothorax. G. F. CAPUANI. *Policlin.*, Rome, 1923, xxx, sez. prat., 562.

Contribution on the technique of pneumothorax. S. PULVIRENTI. *Policlin.*, Rome, 1923, xxx, sez. prat., 564.

The interpretation and diagnosis of gross lesions within the lungs. R. H. HAYES. *Illinois M. J.*, 1923, xliii, 314.

Observations on the treatment of pulmonary hæmorrhage by artificial pneumothorax. M. J. FINE. *J. Med. Soc. N. Jersey*, 1923, xx, 119.

Hydatid cysts of the lungs and pleura. R. HALAHAN. *Surg., Gynec. & Obst.*, 1923, xxxvi, 354.

Abscess of the lung. W. W. BOWEN. *J. Iowa State M. Soc.*, 1923, xiii, 142.

Non-tuberculous pulmonary abscess. W. WHITTEMORE. *Boston M. & S. J.*, 1923, clxxxviii, 497.

Phrenicotomy in the treatment of pulmonary tuberculosis. A. V. FRISCH. *Klin. Wchnschr.*, 1923, ii, 72.

Bronchial fistulæ. W. GAST. *Deutsche Ztschr. f. Chir.*, 1922, clxxv, 219. [125]

Malignant tumors of the lung. V. MONTENEGRO. *Prog. de la clin.*, Madrid, 1923, xxv, 39. [125]

Two cases of primary carcinoma of the lung. G. TRIVIÑO. *Arch. de med., cirug. y especial.*, 1923, xi, 318.

Report on a case of secondary carcinoma of the lung with pulmonary tuberculosis. J. T. SCOTT. *Virginia M. Month.*, 1923, l, 39.

Extraction of a tooth brush from the right pleural cavity. AUVRAY. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 520.

Pleural effusions. J. D. STERNBERG and W. H. WATSON. *Northwest Med.*, 1923, xxii, 119.

Two cases of hæmorrhage after cauterization of pleural adhesions by the Jacobæus method. H. DAHLSTEDT. *Acta chirurg. Scand.*, 1923, lv, 497.

Pleural pressure and lung collapse in artificial pneumothorax. G. BRECCIA. *Policlin.*, Rome, 1923, xxx, sez. med., 89. [125]

Empyema thoracis. H. P. BROWN, JR. *Ann. Surg.*, 1923, lxxvii, 401.

Acute empyema. J. M. EMMETT. *Internat. J. Surg.*, 1923, xxxvi, 148.

Chronic empyema from a foreign body; pneumolysis; recovery. MARSIGLIA. *Arch. ital. di chir.*, 1923, vi, 659.

Recent progress in the treatment of chronic empyema. C. A. HEDBLUM. *Northwest Med.*, 1923, xxii, 115.

Experience with the Mozingo method of treatment for empyema. A. L. FUERTH. *J. Missouri State M. Ass.*, 1923, xx, 122.

The surgical management of empyema. G. B. RHODES. *Cincinnati J. M.*, 1923, vi, 66.

Opening the peritoneum in operations for empyema. H. L. BEYE. *J. Am. M. Ass.*, 1923, lxxx, 1117.

Primary cancer of the pleura in man and wife. A. JOSEFSON. *Acta med. Scand.*, 1923, iii, supp., 159. [125]

Heart and Pericardium

A stab wound of the right ventricle; vertical, trans-sternal thoracotomy; suture of the heart; recovery. J. VIDAL. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 255.

Operation in two cases of cardiac wounds. F. BURIAN. *Časop. lék. česk.*, 1922, lxi, 585. [126]

Spontaneous rupture of the heart. C. TREVISANELLO. *Riforma med.*, 1923, xxxix, 218.

Radiological investigations on the influence of narcosis and operation upon the size of the heart. C. MUELLER. *Fortschr. a. d. Geb. d. Roentgenstrahlen*, 1923, xxx, 331.

Myocardial deficiency from a surgical standpoint. J. L. YATES, M. F. ROGERS, and R. E. MORTER. *Wisconsin M. J.*, 1923, xxi, 483.

Endocarditis with gangrene of both legs and an infarct of the lung. J. HIRSCHMANN. *Practitioner*, 1923, cx, 331.

Two cases of wounds of the pericardium without a wound of the heart. VERGEZ. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 483.

A case of hæmopericardium without a wound of the heart. M. GUIBÉ. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 142.

Oesophagus and Mediastinum

Foreign bodies in the oesophagus. VON EICKEN. *Med. Klin.*, 1923, xix, 371.

Observations on the art and technique of bronchoscopy and oesophagoscopy. T. HUBBARD. *Ann. Otol., Rhinol. & Laryngol.*, 1923, xxxii, 298.

A small diverticulum of the oesophagus causing severe dysphagia; removal at one operation; recovery. P. PICQUET. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 268.

Oesophageal diverticula. BUFALINI. *Arch. ital. di chir.*, 1923, vi, 647.

Some phases of oesophageal stenosis. R. MCKINNEY. *Ann. Otol., Rhinol. & Laryngol.*, 1922, xxxi, 977. [126]

Skigrams showing simple fibrous strictures of the oesophagus in a child. A. RYLAND. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Laryngol., 42.

The treatment of stricture of the oesophagus. G. LOTHEISSEN. *Zentralbl. f. Chir.*, 1923, l, 431.

A retrograde oesophageal bougie. G. TUCKER. *Atlantic M. J.*, 1923, xxvi, 461.

Sudden hæmorrhage an occasional cause of death in epithelioma of the oesophagus. N. W. GREEN. *Surg. Clin. N. Am.*, 1923, iii, 531.

A case of oesophageal cancer perforating into the trachea. F. M. MADINAVEITIA and S. F. G. ORCOYAN. *Prog. de la clin.*, Madrid, 1923, xxv, 366.

Experimental surgery of the thoracic oesophagus. R. T. MILLER, JR., and W. D. W. ANDRUS. *Bull. John Hopkins Hosp., Balt.*, 1923, xxxiv, 109.

An atypical lymphocytoma of the mediastinum. MINVIELLE and COLOMBIÈS. *Bull. et mém. Soc. méd. d. hôp. de Par.*, 1923, 3s., xxxix, 598.

Miscellaneous

Thymoma. E. KNERINGER and A. PRIESEL. *Arch. f. path. Anat. u. Physiol.*, 1923, ccxli, 475.

Reflex dullness in old chest wounds. A. N. COX. *Lancet*, 1923, cciv, 693.

Death from progressive emphysema. C. G. McDONALD. *Med. J. Australia*, 1923, i, 446.

SURGERY OF THE ABDOMEN

Abdominal Wall and Peritoneum

Massive ventral hernia. H. S. VILLARS. *Ann. Surg.*, 1923, lxxvii, 445.

A case of bilocular hernia. B. W. RYCROFT. *Brit. J. Surg.*, 1923, x, 579.

The treatment of strangulated obturator hernia. A. R. SHORT. *Brit. M. J.*, 1923, i, 718.

A new operation for femoral hernia. E. ANDREWS. *Illinois M. J.*, 1923, xliii, 290.

Operation for the radical cure of femoral hernia. E. W. HEY GROVES. *Brit. J. Surg.*, 1923, x, 529. [127]

Inguinal hernia in the male. S. ERDMAN. *Ann. Surg.*, 1923, lxxvii, 171. [127]

The radical operation for hernia in infants. H. MAASS. *Klin. Wchnschr.*, 1922, i, 2526.

The local anæsthetic in herniotomy. O. BLOCH. *Kentucky M. J.*, 1923, xxi, 204.

Changes in the peritoneum following the entrance of urine and feces into the peritoneal cavity. CARMONA. *Arch. ital. di chir.*, 1923, vi, 648.

The pathogenesis of biliary effusion in the peritoneum without perforation of the biliary tract. DOMINICI. *Arch. ital. di chir.*, 1923, vi, 648.

Gas peritonitis. H. STEGEMANN. *Arch. f. klin. Chir.*, 1923, cxxiii, 523.

Tuberculous peritonitis with large ascitic effusion; concomitant lesions of the retractile mesentery; laparotomy; amelioration. J. DUVERGEY. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 532.

The treatment of peritonitis with different solutions. BRUETT. *Arch. f. klin. Chir.*, 1922, cxxi, 288.

The principles of surgical treatment of infection of the peritoneum. F. FRASER. *Bristol M.-Chir. J.*, 1923, xl, 29. [128]

Experimental investigations on the gastro-intestinal movements in acute peritonitis. K. ARAI. *Arch. f. exper. Path. u. Pharmacol.*, 1922, xciv, 149. [128]

Subcutaneous abdominal emphysema following laparotomy. R. STINER. *Rev. de med. y cirug. de la Habana*, 1923, xxviii, 217.

Studies of the great omentum in man. E. SEIFERT. *Arch. f. klin. Chir.*, 1923, cxxiii, 608.

Torsion of the great omentum. C. LEFEVRE. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 175.

A large epiploic cyst developed about a fragment of rubber sound. E. KUMMER. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 345.

A blood cyst of the great omentum ruptured into the free peritoneal cavity; operation; recovery. A. CHALIER. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 186.

Inflammatory tumors of the omentum. R. LEWISOHN. *Surg. Clin. N. Am.*, 1923, iii, 521.

Five cases of retractile mesentery. DUBOUCHER. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 419.

The retractile mesentery. HALLOPEAU and MAUCLAIRE. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 478.

A case of sarcoma of the mesentery; successful removal involving resection of the ascending colon and 237.5 cm. of the ileum, with pathologic report. G. BELL. *Med. J. Australia*, 1923, i, 375.

Postoperative intra-abdominal adhesions. R. H. SEELYE. *Boston M. & S. J.*, 1923, clxxxviii, 489.

The diagnosis of abdominal adhesions. C. W. STRICKLER. *South. M. J.*, 1923, xvi, 237.

Gastro-Intestinal Tract

Gastro-intestinal diseases from 1916 to 1919 in the male wards of the Obuchoff Hospital. M. A. GORSCHOFF. *Festschr. z. 50jaehr. Amtsjubil. d. Dir. d. staedt. Obuchoff-Krankenh.* in Petrograd, 1922, i, 101.

Diarrhoea and disturbances of digestive function. D. U. SILVERMAN. *N. Orleans M. & S. J.*, 1923, lxxv, 592.

Roentgenology of the alimentary tract. M. J. HUBENY. *Chicago Med. Rec.*, 1923, xlv, 613.

- A textbook and atlas of gastroscopy. R. SCHNIDLER. Munich: Lehmann, 1923.
- The value of gastroscopy. STERNBERG. Mitt. a. d. Grenzgeb. d. Med. u. Chir., 1923, xxxvi, 41.
- Progress and retrogression in gastroscopy. STERNBERG. Acta chirurg. Scand., 1923, lv, 563.
- The classification of gastro-intestinal disturbances. J. A. BAUZA. Rev. méd. d. Uruguay, 1923, xxvi, 129.
- The question of a gastric hormone. R. K. S. LIM. Quart. J. Exper. Physiol., 1922, xiii, 79.
- The diagnosis in the chronic dyspepsias. C. S. MCVICAR. Canadian Pract., 1923, xlviii, 137.
- A contribution to the surgical treatment of atonic dyspepsia. C. A. PANNETT. Brit. J. Surg., 1923, x, 558.
- Dilatation of the stomach from the surgeon's viewpoint. A. W. HAMMER. Med. Times, 1923, li, 91.
- Compression of the stomach from a high-lying colon. A. H. HOEMANN. Muenchen. med. Wchnschr., 1923, lxx, 149.
- Congenital hypertrophy of the pylorus. G. F. STILL. Brit. M. J., 1923, i, 579. [128]
- Hypertrophic pylorostenosis infantilis—a semi-critical commentary. L. R. ELLARS. Internat. J. Surg., 1923, xxxvi, 150.
- A calcified hydatid cyst of the lesser curvature and the lesser omentum; extirpation. SAVARIAUD. Bull. et mém. Soc. de chir. de Par., 1923, xlix, 367.
- Syphilis of the stomach. W. M. KARATYGIN. Sibirski Med. J., 1923, p. 135. [129]
- Fibroma of the stomach. A. J. BLAXLAND. Brit. J. Surg., 1923, x, 581.
- Gastro-colic fistula. G. P. PRATT. Ann. Surg., 1923, lxxvii, 433.
- The histology of the stomach predisposed to ulcer. L. MOSZKOWICZ. Arch. f. klin. Chir., 1923, cxxii, 444.
- A statistical inquiry into the efficiency of present-day methods of diagnosis of ulcers of the stomach and duodenum, and into the value of gastrojejunostomy in their treatment. A. YOUNG, A. J. HUTTON, and J. S. BUCHANAN. Lancet, 1923, cciv, 681.
- The diagnosis of peptic ulcer and its bearings on treatment. T. CARWARDINE. Bristol M.-Chir. J., 1923, xl, 71.
- Old and new aids in the differentiation of ulcer and cancer of the stomach. E. PAYR. Zentralbl. f. Chir., 1922, xlix, 1706. [129]
- Gastric and duodenal ulcer; medical and surgical aspects; pre-operative and postoperative treatment. J. R. TURNER, JR. Northwest Med., 1923, xxii, 126.
- Ulcer of the stomach as a cause of fever. E. MUELLER. Mitt. a. d. Grenzgeb. d. Med. u. Chir., 1922, xxxv, 453. [129]
- Peptic ulcer. J. H. PHIPPS. J. Arkansas M. Soc., 1923, xix, 211.
- The experimental production of peptic ulcer. F. C. MANN and C. S. WILLIAMSON. Ann. Surg., 1923, lxxvii, 409.
- Two cases of gastrojejunal ulcer. VICENTE and SOLDEVILLA. Med. Ibera, 1923, vii, 201.
- The presence of thrush in chronic gastric ulcer, hæmorrhagic erosions, and gastric carcinoma. A. HARTWICH. Arch. f. path. Anat. u. Physiol., 1923, ccxlii, 116.
- Hour-glass contraction of the stomach. W. A. DOWNES. Surg. Clin. N. Am., 1923, iii, 343.
- The results of the medical treatment of gastric and duodenal ulcer. N. A. NIELSEN. Acta med. Scand., 1923, lviii, 1.
- The treatment of chronic gastric and duodenal ulcers. G. HOLLER. Med. Klin., 1923, xix, 379.
- A consideration of 250 cases of gastroduodenal ulcer treated personally. OLIANT. Arch. ital. di chir., 1923, vi, 700.
- X-ray treatment of peptic ulcer. J. KOTTMAIER. Fortschr. d. Med., 1923, xli, 41.
- X-ray treatment of gastric ulcer. O. STRAUSS. Deutsche med. Wchnschr., 1923, xlix, 411.
- The healing of gastric ulcers and associated lesions by deep X-ray therapy. A. SCHULZE-BERGE. Strahlentherapie, 1922, xiv, 650.
- A contribution to the surgery of the stomach and duodenum. F. ROSSI. Arch. ital. di chir., 1923, vi, 700.
- The surgical treatment of ulcer of the stomach and duodenum. H. FINSTERER. Surg., Gynec. & Obst., 1923, xxxvi, 454. [130]
- The surgical treatment of ulcer of the stomach and duodenum. E. HEDLUND. Foerh. Svens. Laek.-Saellsk. Sammark., 1922, xlviii, 167, 209.
- Recurrence of gastric ulcer after suture of the mucous membrane with silk. O. WIEDHOF. Zentralbl. f. Chir., 1923, l, 4.
- A new method pyloric exclusion. K. LUTZ. Zentralbl. f. Chir., 1923, l, 469.
- An experimental study upon exclusion of the pylorus. G. CAVINA. Arch. ital. di chir., 1923, vi, 699.
- Hernia of the wall of the stomach at the level of a suture occluding the pylorus. HARTMANN. Bull. et mém. Soc. de chir. de Par., 1923, xlix, 362.
- A new tip for gastroduodenal tubes. E. HOLLANDER. J. Am. M. Ass., 1923, lxxx, 1217.
- A case of inverted pylorus obstructing a gastrojejunostomy aperture. J. MCCLURE and H. E. CLAREMONT. Lancet, 1923, cciv, 750.
- Resection of gastric ulcer. P. BASTIANELLI. Arch. ital. di chir., 1923, vi, 702.
- The operative prophylaxis of recurrence of pyloric and duodenal ulcer and of the development of peptic ulcer of the jejunum. J. LÉVARI. Gyógyászat, 1922, p. 688.
- Perforated ulcer of the stomach. CADENAT and DE MARTEL. Bull. et mém. Soc. de chir. de Par., 1923, xlix, 299.
- Perforated ulcer of the stomach. A. BASSET. Bull. et mém. Soc. de chir. de Par., 1923, xlix, 557.
- A case of perforation of a pyloroduodenal ulcer. GAMBERINI. Arch. ital. di chir., 1923, vi, 698.
- Prepyloric callous ulcer; perforation; suture; gastro-enterostomy; recovery. DUBOUCHER. Bull. et mém. Soc. de chir. de Par., 1923, xlix, 205.
- Three cases of gastric ulcer perforated into the free peritoneal cavity. R. MONOD. Bull. et mém. Soc. de chir. de Par., 1923, xlix, 337.
- Perforated ulcer of the stomach; resection and suture eighteen hours after perforation; recovery. G. DEHELLY. Bull. et mém. Soc. de Chir. de Par., 1923, xlix, 492.
- Perforated gastric and duodenal ulcers. LECÈNE. Bull. et mém. Soc. de chir. de Par., 1923, xlix, 50.
- The practical significance in acute peritoneal syndromes of intra-abdominal air under pressure, a sign of gastro- and duodenal perforation. CHATON. Bull. et mém. Soc. de chir. de Par., 1923, xlix, 3.
- The treatment of gastric ulcer perforated into the free peritoneal cavity. KUMMER. Bull. et mém. Soc. de chir. de Par., 1923, xlix, 534.
- The treatment of ulcers of the stomach perforated into the free peritoneal cavity. R. BAUDET. Bull. et mém. Soc. de chir. de Par., 1923, xlix, 15.
- A case of perforated ulcer of the lesser curvature treated by suture of the perforation without gastro-enterostomy; recovery. TAILHEFER. Bull. et mém. Soc. de chir. de Par., 1923, xlix, 385.
- Improved surgical treatment of duodenal and gastric perforations. DELAGENIÈRE. Bull. et mém. Soc. de chir. de Par., 1923, xlix, 134.

Radical treatment of acute gastric perforations, particularly of carcinoma associated with cholelithiasis. A. SUTER. *Schweiz. med. Wchnschr.*, 1923, liii, 193.

Operative results in acute gastric and duodenal hæmorrhage. H. FINSTERER. *Wien. klin. Wchnschr.*, 1922, xxxv, 913. [130]

Malignant fibrochondroma of the stomach. CHARIER and RIOU. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 488.

The typical forms of carcinoma of the stomach. CARNOT. *Prog. de la clin.*, Madrid, 1923, xxv, 477.

The roentgen ray as an adjuvant in the treatment of advanced cases of carcinoma of the stomach. C. R. ROBINS. *Virginia M. Month.*, 1923, I, 33. [131]

The surgical treatment of cancer of the stomach. J. B. MONTAÑA Y FLOREZ. *Repert. de med. y cirug.*, 1923, xiv, 169.

The Billroth I method of stomach resection. SCHOE-MAKER. *Arch. f. klin. Chir.*, 1922, cxxi, 268.

Three cases of gastrectomy. D'AGOSTINO. *Arch. ital. di chir.*, 1923, vi, 689.

Radical operation on the stomach, with especial reference to mobilization of the lesser curvature. W. J. MAYO. *Surg., Gynec. & Obst.*, 1923, xxxvi, 447. [132]

A few remarks regarding the character of digestion after operations on the stomach and intestines. W. F. DAGAEW. *Nautschnyje Sapiski Tuskowo Gubsdrawa*, 1921, p. 23. [133]

The permeability of the intestinal mucosa to certain types of bacteria determined by cultures from the thoracic duct. C. S. WILLIAMSON and R. O. BROWN. *Am. J. M. Sc.*, 1923, clxv, 480.

Studies in fat digestion. M. M. NULL. *California State J. M.*, 1923, xxi, 168.

Internal hernia following posterior gastro-enterostomy; with acute dilatation of the stomach as a sequence to reduction. W. T. WARWICK. *Brit. J. Surg.*, 1923, x, 577.

A pedunculated sarcoma of the small intestine causing, by its rupture, a violent internal hæmorrhage. BRIN. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 275.

Stercoral cutaneous fistula of the small intestine; ileocolic anastomosis; resection of the fistulized loop; recovery. H. COSTANTINI and H. DUBOUCHER. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 222.

A case of intestinal invagination. C. D. MAITLAND. *Brit. M. J.*, 1923, i, 717.

Intestinal obstruction, with several case reports. L. I. MILLER. *Colorado Med.*, 1923, xx, 106.

Spastic ileus in grippe. F. COLMERS. *Zentralbl. f. Chir.*, 1922, xlix, 1931. [134]

Ileus from a cystic lymphangioma near the small intestine. E. SCHNEBEL. *Med. Klin.*, 1923, xix, 208.

The relationship between intestinal obstruction, chronic peritonitis, and chronic multiple serositis. C. N. DOWD. *Ann. Surg.*, 1923, lxxvii, 423.

Toxic factors in intestinal obstruction. T. G. ORR. *Med. Herald*, 1923, xlii, 117.

Acute intestinal obstruction in nurslings. A. RIECHE. *Deutsche med. Wchnschr.*, 1923, xlix, 386.

Unusual chronic invagination of the small intestine. O. HAGEDORN. *Deutsche Ztschr. f. Chir.*, 1922, clxxvi, 407.

Intussusception—some points in diagnosis and a plea for earlier recognition. F. CLARKE. *Nebraska State M. J.*, 1923, viii, 142.

Intussusception: with a report of four cases. L. D. ENGLERTH and F. E. KELLER. *Therap. Gaz.*, 1923, 38, xxxix, 235.

Intestinal intussusception. ALGLAVE. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 450.

Intestinal intussusception in the course of an acute enterocolitis. N. LEONE BLOISE. *Rev. méd. d. Uruguay*, 1923, xxvi, 137.

A case of chronic intussusception. G. A. EWART. *Brit. M. J.*, 1923, i, 629.

The treatment of intestinal intussusception. ZAHRADNICKY. *Rozhledy v chir. a gynaek.*, 1922, ii, 95.

Intestinal intussusception operated upon; probably a recurrence. PENOT. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 227.

Duodenal gastric motility. T. BÁRSONY. *Wien. klin. Wchnschr.*, 1922, xxxv, 916. [134]

The painful points of the subhepatic "crossroads" and duodenal ptosis. F. RAMOND and G. PARTURIER. *Presse méd.*, Par., 1923, xxxi, 353.

Diagnostic applicability of the duodenal tube. WINTERSTEIN. *Arch. f. klin. Chir.*, 1922, cxxi, 296.

Mesenteric occlusion of the duodenum and acute dilatation of the stomach. A. BRAUN. *Beitr. z. klin. Chir.*, 1923, cxxviii, 103.

Chronic duodenal ileus. S. BARLING. *Brit. J. Surg.*, 1923, x, 501. [134]

Clinical and experimental data on chronic duodenal stenosis. W. KOENNECKE and H. MEYER. *Deutsche Ztschr. f. Chir.*, 1922, clxxv, 179. [135]

Experimental investigations regarding duodenal obstruction and atony of the stomach. W. KOENNECKE. *Beitr. z. klin. Chir.*, 1922, cxxvii, 698. [135]

Duodenal ulcer. M. F. DWYER. *Northwest Med.*, 1923, xxii, 122.

Duodenal ulcer. CAPPELLI. *Arch. ital. di chir.*, 1923, vi, 701.

Duodenal ulcer. V. ASCOLI. *Arch. ital. di chir.*, 1923, vi, 667.

An improved method for the diagnosis and localization of duodenal and gastric ulcers. S. L. CASH. *N. York M. J. & Med. Rec.*, 1923, cxvii, 478.

The relative value of X-ray evidence in the diagnosis of duodenal ulcer. C. D. ENFIELD. *J. Radiol.*, 1923, iv, 127.

Partial obstruction at the duodenojejunal junction as a cause of ulcer of the duodenum. E. P. SLOAN. *J. Am. M. Ass.*, 1923, lxxx, 977.

Complication of duodenal ulcer. N. P. DAVIS. *Atlantic M. J.*, 1923, xxvi, 464.

Perforated duodenal ulcer; duodenopylorectomy; death on the seventh day. MARAIS. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 207.

Perforated duodenal ulcer, with a report of three recent cases. H. W. HEWITT. *Grace Hosp. Bull.*, Detroit, 1923, vii, 1.

The diagnosis and treatment of duodenal and gastric ulcer. E. M. EBERTS. *Canadian M. Ass. J.*, 1923, xiii, 230.

When should one operate upon a duodenal ulcer? S. CARRO. *Arch. de med., cirug. y especial.*, 1923, x, an. acad. med.-quirúrg. españ., 257.

Simple perforating ulcer of the jejunum. CHIASSERINI. *Arch. ital. di chir.*, 1923, vi, 690.

Peptic ulcer of the jejunum. JENCKEL and SCHUEPPEL. *Deutsche Ztschr. f. Chir.*, 1922, clxxv, 337. [135]

Do some of our hitherto used methods of operative procedure prevent with certainty the recurrence of peptic ulcer of the jejunum? HABERER. *Arch. f. klin. Chir.*, 1923, cxxii, 534.

Acute obstruction by Meckel's diverticulum with symptoms resembling appendicitis. J. W. HEEKES. *Brit. M. J.*, 1923, i, 719.

Congenital and acquired deformity of the ileoceco-appendicular fold as a cause of the ileocecal stenosis of position. S. SOLIERI. *Arch. ital. di chir.*, 1923, vi, 690.

Ileocecal resection. CASCINO. Arch. ital. di chir., 1923, vi, 692.

Recurring ileocecal intussusception: report of a case complicated by tuberculosis of the intestine. M. THORNER. J. Am. M. Ass., 1923, lxxx, 1063.

Abnormalities of fixation of the ascending colon: the relation of the symptoms to the anatomical findings. A. A. McCONNELL and T. G. HARDMAN. Brit. J. Surg., 1923, x, 532.

Congenital idiopathic dilatation of the colon. D. FIRTH and K. PLAYFAIR. Arch. Radiol. & Electrotherapy, 1923, xxvii, 321.

Megacolon. A. A. MATTHEWS. Northwest Med., 1923, xxii, 135.

Fecal concretions; their removal by the natural route. R. FINOCHIETTO. Semana méd., 1923, xxx, 678.

The pathogenesis of mucorrhœal neuro-colopathy. C. J. DÍAZ. Siglo méd., 1923, lxx, 203. [137]

Intestinal obstruction by an unusual form of enterolith. B. S. SIMPSON. Edinburgh M. J., 1923, n. s. xxx, 176.

The treatment of chronic intestinal stasis by cœcosigmoidostomy. C. LEFEBVRE. Presse méd., Par., 1923, xxxi, 175. [137]

A case of intestinal occlusion treated and cured by an artificial vaginal anus. A. J. BENGOLIS. Bull. et mém. Soc. de chir. de Par., 1923, xlix, 297.

The surgical treatment of chronic ulcerative colitis. H. B. STONE. Ann. Surg., 1923, lxxvii, 293. [137]

Subcutaneous rupture of the intestine. R. P. ROWLANDS. Brit. M. J., 1923, i, 716.

The histopathology of the intestine in cholera. E. W. GOODPASTURE. Philippine J. Sc., 1923, xxii, 413.

A poisonous constituent of cholera stools. E. W. GOODPASTURE. Philippine J. Sc., 1923, xxii, 439.

The diagnosis of intestinal parasitic infection. T. D. DAVIS. Virginia M. Month., 1923, i, 26.

Gas cysts of the intestine. MATRONOLA. Arch. ital. di chir., 1923, vi, 693.

Intestinal gangrene as a complication of typhus. A. GREGORY. Zentralbl. f. Chir., 1923, i, 507.

Cancer of the colon. R. P. SULLIVAN. Am. J. M. Sc., 1923, clxv, 583.

The results of crushing and burying the ends of the intestine in man. J. OKINCZYK and G. D'ALLAINES. Bull. et mém. Soc. de chir. de Par., 1923, xlix, 555.

The utilization of the rubber catheter in intestinal anastomosis. E. J. HORGAN. Surg., Gynec. & Obst., 1923, xxxvi, 565.

An experimental study on the suturing of non-peritonized sections of intestine following resection. F. MANDEL and M. GARA. Zentralbl. f. Chir., 1922, xlix, 1855. [137]

The spontaneous formation of anastomoses of the intestine. L. BERCZELLER and Z. SZILÁRD. Wien. klin. Wchnschr., 1922, xxxv, 1006; Gyógyászat, 1922, p. 680.

The morphology of the human cæcum. E. JACOBSEN. Anat. Anz., 1922, lvi, 97.

Atrophy of the cæcum? E. FAVEZ. Rev. méd. de la Suisse Rom., 1923, xliii, 258.

Sliding hernia of the cæcum and appendix in children. V. C. DAVID. Ann. Surg., 1923, lxxvii, 438.

A residual encapsulated abscess as the cause of abdominal fistula after operation on the cæcum. M. COHN. Zentralbl. f. Chir., 1922, i, 1858.

Hernia of the appendix. J. LAHOZ and YBARRONDO. Arch. de gynec., obst. y pediat., 1923, xxxvi, 73.

Actinomycosis of the appendix. C. J. MACGUIRE, JR. Surg. Clin. N. Am., 1923, iii, 480.

Appendicitis: its diagnosis and treatment. W. J. MOORE. Glasgow M. J., 1923, n. s. xvii, 231.

Appendicitis in children. J. GARRIDO-LESTACHE. Pediat. españ., 1923, xii, 81.

Trauma and appendicitis. B. P. SABAWALA. Brit. M. J., 1923, i, 630.

Pulmonary tuberculosis and appendicitis. A. ARMSTRONG. Atlantic M. J., 1923, xxvi, 446. [137]

A case of cystic appendicitis. LÉPOUTRE and DELATTRE. Bull. et mém. Soc. de chir. de Par., 1923, xlix, 330.

Mucoid casts from the appendix. L. COBBETT and D. KIELIN. J. Path. & Bacteriol., 1923, xxvi, 297.

Fish-egg mucocele of the appendix; a cystic type of chronic catarrhal appendicitis, with report of a case. W. R. MORRISON. Boston M. & S. J., 1923, clxxxviii, 532.

Some observations on the large mononuclear index in chronic appendicitis. L. O. DUTTON. J. Lab. & Clin. Med., 1923, viii, 473.

The leucocyte count in the diagnosis and prognosis of appendicitis. H. W. RICE. J. South Carolina M. Ass., 1923, xix, 407.

Hæmaturia and appendicitis. J. J. STUTZIN. Ztschr. f. Urol., 1923, xviii, 25.

Hæmaturia in appendicitis. L. CHEINISSE. Arch. de med., chir. y especial., 1923, xi, 49.

Acute gangrenous or perforative and suppurative retrocæcal appendicitis. J. N. JACKSON. South. M. J., 1923, xvi, 282.

Ruptured appendix with general peritonitis simulating ruptured gastric ulcer. J. F. CONNORS. Surg. Clin. N. Am., 1923, iii, 573.

Some observations on the treatment of acute appendicitis. J. M. LOVE. Brit. J. Surg., 1923, x, 520.

Chronic appendicitis: its differential diagnosis and treatment. F. B. GURD. Canadian M. Ass. J., 1923, xiii, 237.

Does chronic appendicitis exist as such from the beginning? D. TADDEI. Policlin., Rome, 1923, xxx, sez. prat., 297.

The clinical importance of the chronic changes in the appendix which are discovered by the roentgen ray. F. W. WHITE. Boston M. & S. J., 1923, clxxxviii, 587.

Perforated appendicitis. O. L. PELTON. Illinois M. J., 1923, xliii, 308.

Excising the appendix vermiformis: technique. W. VAN HOOK. Boston M. & S. J., 1923, clxxxviii, 537.

Practical advice with regard to the diagnosis and treatment of diseases of the digestive tract. The cause of the pains frequently persisting after appendectomy. L. KUTTNER. Deutsche med. Wchnschr., 1923, xlviii, 1604. [138]

On septicæmic infection following operations for appendicitis: a prophylactic serum. H. H. BROWN. Brit. M. J., 1923, i, 591.

Adenocarcinoma of the appendix. A. O. THOMAS. Brit. M. J., 1923, i, 680.

A case of multiple chylus cysts of the descending colon. H. POGE. Klin. Wchnschr., 1922, i, 2579.

The closure by colectomy of an artificial anus in the descending colon secondary to drainage of a left perinephritic abscess. CHATON. Bull. et mém. Soc. de chir. de Par., 1923, xlix, 107.

Fibrosis of the mesentery of the sigmoid. A. LESNIEWSKI. Presse méd., Par., 1923, xxxi, 388.

Diverticulitis of the sigmoid. M. A. ANDERSON. Practitioner, 1923, cx, 273.

A case of erosion of the rectum by an ectopic placenta. J. A. C. FORSYTH. Lancet, 1923, cciv, 795.

Villous papilloma of the rectum, with case report. H. B. ADAMS. Hahneman. Month., 1923, lviii, 217.

The treatment by radiation of cancer of the rectum. H. H. BOWING and F. W. ANDERSON. Am. J. Roentgenol., 1923, x, 230.

Circular suture of the rectum following resection. K. KOCH. *Rozhledy v chir. a gynaek.*, 1922, ii, 120.

The etiology and pathogenesis of anal pruritus and pruritus ani. J. F. MONTAGUE. *N. York M. J. & Med. Rec.*, 1923, cxvii, 469.

The non-surgical treatment of hæmorrhoids in poor surgical risks. M. C. PRUITT. *J. Med. Ass. Georgia*, 1923, xii, 138.

Anæsthesia in operations upon the anus. G. ZORRAGUIN. *Semana méd.*, 1923, xxx, 773.

Liver, Gall-Bladder, Pancreas, and Spleen

A contribution to the study of the function of the liver with reference to the fats. F. GALDI. *Riforma med.* 1923, xxxix, 411.

Hepatitis, cholelithiasis, hydrops of the gall-bladder. C. G. HEYD. *Surg. Clin. N. Am.*, 1923, iii, 373.

The pathology of human bile secretion. GUNDERMANN. *Arch. f. klin. Chir.*, 1922, cxxi, 264.

Non-parasitic cysts of the liver and bile passages. L. SÉNÈQUE. *Presse méd.*, Par., 1923, xxxi, 346.

Non-parasitic cysts of the liver, especially solitary neoplastic cysts; unilocular cystadenoma. O. MARGARUCCI. *Policlin.*, Rome, 1922, xxix, sez. chir., 649. [138]

Hepatic cyst with reduplicated bile passages. E. ELISCHER. *Zentralbl. f. Chir.*, 1923, i, 341.

Ascariasis of the liver and the bile ducts. G. L. HARTMANN-KEPPEL. *J. de chir.*, 1923, xxi, 157. [138]

Certain developmental stages of ascaris lumbricoides ova in the liver tissue. C. MONSERRAT and C. AFRICA. *Philippine J. Sc.*, 1923, xxii, 459.

Hydatid cyst of the liver. G. ARRIZABALAGA. *Rev. méd. d. Uruguay*, 1923, xxvi, 93.

The significance of the deviation of complement in echinococcus cysts of the liver. SAVELLA. *Arch. ital. di chir.*, 1923, vi, 655.

Arneth's palpation for the differential diagnosis between abscess and gumma of the liver. G. I. BON. *Nederl. Tijdschr. v. Geneesk.*, 1922, lxvi, 432.

Large abscess of the liver, the febrile form of these abscesses. V. COMBIER and J. MURARD. *Presse méd.*, Par., 1923, xxxi, 386.

Cavernous hæmangioma of the liver. J. PODLAHA. *Bratislavské lékařské listy*, 1922, i, 82.

A stone in the common duct complicated by hydatid cyst of the lower surface of the liver. SAVARIAUD. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 286.

The end results of omentopexy in cirrhosis of the liver. L. MAYER and J. KONINGS. *Bruxelles méd.*, 1923, iii, 502. [139]

Surgical interference in acute and subacute atrophy of the liver. W. BRAUN. *Klin. Wchnschr.*, 1922, i, 2510.

Surgery of the liver and biliary system. H. LORENZ. *Wien. med. Wchnschr.*, 1922, lxxii, 1919, 2027, 2080. [139]

Abnormalities of the right hepatic, cystic, and gastroduodenal arteries, and of the bile ducts. E. R. FLINT. *Brit. J. Surg.*, 1923, x, 509.

Anomalous relations of the cystic duct of the gall-bladder to the hepatic duct. D. STETTEN. *Surg. Clin. N. Am.*, 1923, iii, 539.

The cholesterol content of bile in health and disease. C. W. McCCLURE and E. MORTIMER. *Boston M. & S. J.*, 1923, clxxxviii, 633.

Surgical icterus. SLOCKER. *Siglo méd.*, 1923, lxx, 179.

Points in the diagnosis of chronic gall-bladder disease. C. D. ENFIELD. *J. Iowa State M. Soc.*, 1923, xiii, 148.

The early recognition of gall-bladder disease. E. L. KENDIG. *Virginia M. Month.*, 1923, i, 15.

Rare surgical diseases of the biliary tract. KLOSE and WACHSMUTH. *Arch. f. klin. Chir.*, 1923, cxxiii, 1.

Exploration of the biliary tract with the duodenal tube for the purpose of diagnosis. COMOLLI. *Arch. ital. di chir.*, 1923, vi, 654.

The technique of non-surgical drainage of the gall-bladder. G. M. NILES. *J. Med. Ass. Georgia*, 1923, xii, 155.

A study of the bile obtained by non-surgical biliary drainage, with especial reference to its bacteriology. G. M. PIERSOL and H. L. BOCKUS. *Am. J. M. Sc.*, 1923, clxv, 486.

Experiences with non-surgical biliary drainage (Meltzer-Lyon test). E. HOLLANDER. *Am. J. M. Sc.*, 1923, clxv, 497.

Clinical results following 1,000 non-surgical drainages of pathologic gall-bladders. G. M. NILES. *J. South Carolina M. Ass.*, 1923, xix, 463.

Remarks on transduodenal drainage of the gall tract. W. B. MARTIN. *Virginia M. Month.*, 1923, i, 1.

Acute catarrhal jaundice. H. C. MICHIE. *Mil. Surgeon*, 1923, lii, 390.

Cholecystitis and its complications. M. G. PETERMAN. *Surg., Gynec. & Obst.*, 1923, xxxvi, 522. [140]

A case of gangrenous cholecystitis. J. M. ANDREW. *Med. J. Australia*, 1923, i, 447.

Primary suppurative cholecystitis due to Eberth's bacillus. ANZILOTTI. *Arch. ital. di chir.*, 1923, vi, 654.

The influence of chronic disease of the gall-bladder in producing stomach symptoms. F. A. C. SCHEMGER. *Canadian M. Ass. J.*, 1923, xiii, 235.

A rare case of intra-abdominal abscess formation after empyema of the gall-bladder. SCHENK. *Deutsche med. Wchnschr.*, 1923, xlix, 385.

Bacterial relationship to stone formation. O. C. MORRISON. *J. Iowa State M. Soc.*, 1923, xiii, 145.

Note on a case of cholelithiasis in which *Bacillus typhosus* was isolated from the center of a gall-stone. H. M. PERRY. *J. Roy. Army Med. Corps Lond.*, 1923, xl, 295.

Gall-stones associated with kidney stones. D. W. PALMER and G. F. McKIM. *Cincinnati J. M.*, 1923, iv, 102. [140]

The direction of the incision in operations on the biliary tract. H. SIMON. *Zentralbl. f. Chir.*, 1923, i, 345.

A lateral buttonhole incision for drainage, particularly with gall-stone operations. H. HANS. *Muenchen. med. Wchnschr.*, 1923, lxx, 117.

Recurrence of gall-stones after conservative operation upon the gall-bladder performed ten years previously. A. GOSSET. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 585.

Operation for biliary fistula. L. VON STUBENRAUCH. *Zentralbl. f. Chir.*, 1923, i, 465.

Papilloma and adenoma of the gall-bladder. I. ABELL. *Ann. Surg.*, 1923, lxxvii, 276. [141]

Retrograde cholecystectomy. SCHWARTZ, AUVRAY, and DE MARTEL. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 304.

Acute pancreatitis in children: report of a case with cirrhosis of the liver. H. B. ANDERSON. *J. Am. M. Ass.*, 1923, lxxx, 1139.

Acute hæmorrhage pancreatitis simulating high jejunal obstruction. J. F. CONNORS. *Surg. Clin. N. Am.*, 1923, iii, 575.

The pathogenesis of hæmorrhagic pancreatitis. P. BROCO and L. BINET. *Presse méd.*, Par., 1923, xxxi, 219. [141]

An address on pancreatitis and its association with cholecystitis and gall-stones. G. BARLING. *Brit. M. J.*, 1923, i, 705. [141]

True pancreatic cyst. C. A. McWILLIAMS. *Surg. Clin. N. Am.*, 1923, iii, 439.

Some cases of tumors and cysts of the pancreas. P. MAROGNA. *Arch. ital. di chir.*, 1923, vii, 113.

A histologic study of a case of pancreatic hæmorrhage. MONTI. *Arch. ital. di chir.*, 1923, vi, 695.

On the relation of the spleen to metabolism: a review of the literature. J. ROSENBLOOM. *N. York M. J. & Med. Rec.*, 1923, cxvii, 406.

The relation between the spleen and the sexual glands. FICHERA. *Arch. ital. di chir.*, 1923, vi, 663.

The physiopathology of the spleen. A. C. MASSAGIA. *J.-Lancet*, 1923, xliii, 181. [142]

A pseudo-cystic hæmatoma of the spleen in a malarial patient; splenectomy; recovery. H. COSTANTINI. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 9.

Hæmoglobinuria in hæmolytic jaundice. H. Z. GIFFIN. *Arch. Int. Med.*, 1923, xxxi, 573.

The change in the blood picture following splenectomy; a result of the beginning disturbance of internal secretion. E. L. BERESOFF. *Klinitscheskaja Med.*, 1921, iv, 18.

Recurrence of malaria after splenectomy. I. PETRI. *Clujul med.*, 1922, iii, 327.

Traumatic rupture of the spleen. PATEL and VERGNORY. *Presse méd.*, 1923, xxxi, 365.

Rupture of the spleen. L. R. LEMPRIERE. *Brit. M. J.*, 1923, i, 681.

Psychic disturbances after splenectomy in cases of pernicious anæmia. P. NEUMANN. *Klin. Wchnschr.*, 1922, i, 2429. [143]

Miscellaneous

Visceral pain sensation. A. FROELICH. *Wien. med. Wchnschr.*, 1923, lxxiii, 586.

Visceroptosis. R. H. M. HARDISTY. *Canadian M. Ass. J.*, 1923, xiii, 241.

The chronic abdomen. R. HUTCHISON. *Brit. M. J.*, 1923, i, 667. [143]

Sympathetic abdominal and genital syndromes: iliac and hypogastric neurosis. J. ARCE and C. A. CASTAÑO. *Rev. de med. y cirug. de la Habana*, 1923, xxviii, 219.

Pneumoperitoneum and perirenal emphysema. CARELLI. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 22.

Civilian gunshot wounds of the abdomen. C. F. VALE. *J. Michigan State M. Soc.*, 1923, xxi, 183.

Gunshot wound of the abdomen. J. F. CONNORS. *Surg. Clin. N. Am.*, 1923, iii, 563.

Two cases of traumatism of the abdomen. J. LAFOURCADE. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 33.

To what extent is the course of the wound track of value in the diagnosis of intraperitoneal injuries? BUESING. *Arch. f. klin. Chir.*, 1923, cxvii, 782.

Further observations on the importance of water excretion in the differential diagnosis of surgical abdominal diseases. W. GUNDERMANN and G. DUETTMANN. *Mitt. a. d. Grenzgeb. d. Med. u. Chir.*, 1923, xxxvi, 113.

Further investigations regarding paravertebral abolition of pain in the differential diagnosis of diseases of the gall-bladder, stomach, kidney, and appendix, and in the treatment of postoperative lung complications. A. LAEWEN. *Zentralbl. f. Chir.*, 1923, i, 461.

The anatomical basis and sequelæ of sphincter spasms in the gastro-intestinal and genito-urinary tract. K. HELLY. *Muenchen. med. Wchnschr.*, 1923, lxx, 115.

The X-ray diagnosis of echinococcosis, particularly of the abdomen. NEMENOW. *Fortschr. a. d. Geb. d. Roentgenstrahlen*, 1923, xxx, 74.

A retrovesical hydatid cyst operated upon by the coccyperineal approach. J. FIOLE. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 455.

Subdiaphragmatic abscess. F. M. HODGES. *J. Am. M. Ass.*, 1923, lxxx, 1055. [143]

The preperitoneal or retroperitoneal route to the subphrenic abscess as the typical operation. K. NATHER. *Arch. f. klin. Chir.*, 1922, cxvii, 24. [143]

Retromuscular suprapubic abscess: differential diagnosis. MORLET and RAJAT. *Presse méd.*, Par., 1923, xxxi, 337.

Symptoms and operative treatment of circumscribed retroperitoneal diseases. D. JUHL. *Arch. f. klin. Chir.*, 1923, cxviii, 821.

Primary retroperitoneal sarcoma; a report of twenty-eight cases. C. F. ANDREWS. *Surg., Gynec. & Obst.*, 1923, xxxvi, 480. [144]

Blocking of the phrenic nerve in injury to the diaphragm. A. BARON. *Zentralbl. f. Chir.*, 1923, i, 442.

Eventration of the diaphragm. A. E. JAFFIN and J. A. HONEIJ. *Boston M. & S. J.*, 1923, clxxxviii, 593.

GYNECOLOGY

Uterus

The pernicious effects of the use of stems in the uterus and the danger of introducing sounds and other foreign bodies without preparation. J. N. WEST. *Am. J. Obst. & Gynec.*, 1923, v, 383.

An operation for retr displacements of the uterus. J. W. KEEFE. *Am. J. Obst. & Gynec.*, 1923, v, 418.

Immediate and late results of my method of hysteropexy and of vesicohysteropexy. PARLAVECCHIO. *Arch. ital. di chir.*, 1923, vi, 693.

Prolapse of the uterus. ALEXANDER and DON. *Brit. M. J.*, 1923, i, 681.

Double uterus. BOTELLA. *Arch. de med., cirug. y especial.*, 1923, x, an. Soc. ginec. españ., 34.

A cyst of the uterine cornu due to dilatation of the interstitial portion of the tube. J. S. FAIRBAIRN. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Obst. & Gynec., 45.

Mixed tumors of the uterus. A. J. PETERSEN. *J. Lab. & Clin. Med.*, 1923, viii, 369. [145]

A necrotic fibro-adenoma in a patient aged 74, simulating cancer of the corpus uteri. J. S. FAIRBAIRN. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Obst. & Gynec., 45.

The treatment of fibroma and metropathies with radium. E. ROUFFART. *Bruxelles-méd.*, 1923, iii, 610.

Intrinsic dysmenorrhœa. B. BELL. *Lancet*, 1923, cciv, 845.

The endocrine in uterine hæmorrhage. W. LINTZ. *N. York M. J. & Med. Rec.*, 1923, cxvii, 422.

Transplantation of the cervix. W. W. BABCOCK. *Am. J. Obst. & Gynec.*, 1923, v, 380.

Fundal hysterectomy. H. HARTMANN. *Gynéc. et obst.*, 1922, vi, 420. [145]

Uterine cervical polypi. A. E. CHISHOLM. *Practitioner*, 1923, cx, 320.

Chronic endocervicitis. M. W. FLOTHOW. *Nebraska State M. J.*, 1923, viii, 132. [146]

Epithelioma of the uterine cervix. E. POTHERAT. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 242.

Salient points in the diagnosis and treatment of cancer of the uterus. A. H. CURTIS. *Illinois M. J.*, 1923, xliii, 323.

Is cancer of the cervix rare with uterine prolapse of second and third degrees? G. G. CHAVANNAZ. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 185.

Carcinoma of the cervical stump: report of eight cases. L. DAVIS. *Boston M. & S. J.*, 1923, clxxxviii, 304. [146]

Two cases of cancer of the cervix treated by radium before operation. T. W. EDEN and A. GOODWIN. *Proc. Roy. Soc. Med., Lond.*, 1923, xvi, Sect. Obst. & Gynec., 32. [146]

The radical operation of Latzko-Schiffmann for uterine cancer. O. JUERGENS. *Rev. argent. de obst. y gynec.*, 1923, vii, 3.

Sarcoma of the uterus. J. C. MASSON. *Am. J. Obst. & Gynec.*, 1923, v, 345.

Sarcoma of the uterus. P. J. REEL and P. H. CHARLTON. *Ann. Surg.*, 1923, lxxvii, 476. [147]

A plea for a more frequent resort to hysterectomy in the treatment of chronic pelvic disease. J. PHILLIPS. *Practitioner*, 1923, cx, 307.

Adnexal and Peri-Uterine Conditions

Modification of the Rubin technique for the transuterine inflation of the fallopian tubes. A. JACOBY. *Surg., Gynec. & Obst.*, 1923, xxxvi, 571.

The diagnostic value of artificial pneumoperitoneum in sterility in women. B. FRIEDLAENDER. *J. Michigan State M. Soc.*, 1923, xxi, 195.

The patency of the fallopian tubes ascertained by transuterine injection of fluids. I. S. STONE. *Am. J. Obst. & Gynec.*, 1923, v, 408.

Operations on the round ligaments. H. FERGUSON. *Brit. M. J.*, 1923, i, 631.

Contribution to the study of the blood formula in ovarian insufficiency. IZQUIERDO. *Siglo méd.*, 1923, lxx, 411.

Ovariopathic metrorrhagia. VITAL AZA. *Prog. de la clin.*, Madrid, 1923, xxv, 470.

Cyst of the ovary weighing 55 lbs. L. M. AURELIO. *Repert. de med. y cirug.*, 1923, xiv, 188.

An unusual ovarian cyst. FALCONE. *Arch. ital. di chir.*, 1923, vi, 662.

Unusual contents of ovarian cysts—report of two cases. W. BOLT. *Canadian M. Ass. J.*, 1923, xiii, 250.

Three cases of bilateral tumors of the ovary. F. W. BANCROFT. *Surg. Clin. N. Am.*, 1923, iii, 579.

A case of torsion of an ovarian cyst in an infant. E. M. POWELL. *Lancet*, 1923, cciv, 751.

Ossification of a pure fibroma of the ovary. C. CARVALHO. *Gac. méd. Peruana*, 1923, i, 27.

Ten cases of ovariomyoma in women over 70 years of age. H. R. SPENCER. *Brit. M. J.*, 1923, i, 582. [147]

Double salpingo-oophorectomy with partial auto-ovarian transplantation followed by twelve years of menstruation,

a normal pregnancy, and an uncomplicated menopause at 51 years of age. W. S. BAINBRIDGE. *Am. J. Obst. & Gynec.*, 1923, v, 379.

External Genitalia

Cysts of the labia minora. H. MONDOR and P. HUET. *Gynec. et obst.*, 1923, vii, 26. [147]

Common vaginal discharges encountered in practice. J. E. KING. *N. York State J. M.*, 1923, xxxiii, 137.

Adenomatosis vaginae. B. WHITEHOUSE. *Proc. Roy. Soc. Med., Lond.*, 1923, xvi, Sect. Obst. & Gynec., 46.

Miscellaneous

Endocrines in gynecology. J. T. SCHELL. *N. York M. J. & Med. Rec.*, 1923, cxvii, 401.

Sudden acute pain in the shoulders associated with acute pelvic pain in women. I. C. RUBIN. *J. Am. M. Ass.*, 1923, lxxx, 1050.

Inflammations of the female pelvis. N. F. LANE. *Hahne-man. Month.*, 1923, lviii, 241.

Gonorrhoea in women. G. K. HERZOG. *California State J. M.*, 1923, xxi, 113. [147]

The treatment of gonorrhoea in women. J. A. MCGLINN. *Therap. Gaz.*, 1923, 38, xxxix, 229.

Gynecological and obstetrical tuberculosis. V. A. FUNK. *Am. J. Surg.*, 1923, xxxvii, 83.

The treatment of peritoneal and genital tuberculosis in the female with the roentgen ray. W. WEIBEL. *Wien. klin. Wchnschr.*, 1922, xxxv, 933. [148]

The Faehraeus reaction in gynecology. G. CASAL. *Siglo méd.*, 1923, lxx, 121.

Results of radium in gynecology. A. F. MAXWELL. *California State J. M.*, 1923, xxi, 155.

Special features of radium therapy in gynecology. A. H. CURTIS. *Wisconsin M. J.*, 1923, xxi, 498.

A new technique for gynecological operations. T. ROXO. *Rev. méd. d. Rosario*, 1923, xiii, 90.

A plastic operation for the cure of urinary incontinence in women. L. LUSENA. *Arch. ital. di chir.*, 1923, vi, 660.

The healing of the wounds of gynecological operation following previous roentgen treatment. E. VOGT. *Med. Klin.*, 1922, xviii, 1491. [148]

The management of the female urinary bladder after operation and during pregnancy: a further study of residual urine in its bearing on urinary tract disturbances. A. H. CURTIS. *J. Am. M. Ass.*, 1923, lxxx, 1126.

OBSTETRICS

Pregnancy and Its Complications

Sedimentation of the red blood corpuscles and gestation. H. VIGNES and P. HERMET. *Rev. franç. de gynéc. et d'obst.*, 1923, xviii, 42. [149]

The glycosuria test for pregnancy. P. F. WILLIAMS. *Am. J. Obst. & Gynec.*, 1923, xxv, 369. [149]

Some points in the management of pregnancy and labor. A. J. RONGY. *Am. Med.*, 1923, xxix, 231.

Psychoses of pregnancy and the puerperal state. H. W. WRIGHT. *California State J. M.*, 1923, xxi, 170. [149]

Flat pelvis in a diabetic. T. BLANCO. *Arch. de med. cirug. y especial.*, 1923, x, an. Soc. ginec. españ., 14.

The value of abdominal measurements in recognizing the size and maturity of the fetus. C. R. HANNAH. *Texas State J. M.*, 1923, xviii, 543. [149]

A case of pregnancy after extirpation of the fallopian tube on one side and the ovary of the other side. C.

DUJARIER. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 471.

Interstitial pregnancy. T. C. GILBERT. *Texas State J. M.*, 1923, xviii, 546. [150]

A case of full-term intraperitoneal pregnancy following tubal abortion. E. J. JONES-EVANS. *Practitioner*, 1923, cx, 328.

Subcutaneous implantation of the human ovum. G. L. STREETER. *J. Am. M. Ass.*, 1923, lxxx, 989. [150]

Pregnancy and heart disease. D. G. CAMPBELL. *Canadian M. Ass. J.*, 1923, xiii, 244.

The effect of pregnancy on tuberculosis. B. S. POLLAK. *J. Med. Soc. N. Jersey*, 1923, xx, 154.

The complication of purpura with gestation. G. C. MOSHER. *Surg., Gynec. & Obst.*, 1923, xxxvi, 502.

The serum diagnosis of syphilis in the pregnant or parturient woman. P. LASSEUR and H. VERMELIN. *Gynec. et obst.*, 1923, vii, 130. [150]

Studies on the influence of pregnancy in syphilis: the course of syphilitic infection in pregnant women. J. E. MOORE. *Bull. Johns Hopkins Hosp., Balt.*, 1923, xxxiv, 89. [152]

Ovarian cysts and pregnancy: the results in thirty-five cases operated upon during pregnancy. J. SZYMANOWICZ. *Gynéc. et obst.*, 1922, vi, 405. [152]

Laparotomy for pelvic hydatid cyst in a woman three months pregnant. N. BLASCO. *Arch. de med., cirug. y especial.*, 1923, x, an. Soc. ginec. españ., 6.

Ileus during pregnancy. H. A. DIETRICH. *Zentralbl. f. Gynaek.*, 1922, xlv, 2052. [152]

Toxæmias of pregnancy from a new aspect. O. M. GRUZHIT. *Am. J. Obst. & Gynec.*, 1923, v, 400.

An improved phenoltetrachlorophthalein test for liver function in pregnancy and its toxæmias. H. H. ROSENFELD and E. F. SCHNEIDER. *J. Am. M. Ass.*, 1923, lxxx, 743. [152]

The fundus oculi in the toxæmias of pregnancy. J. L. BEHEN. *N. York State J. M.*, 1923, xxiii, 140.

Hyperemesis gravidarum. N. WILSON. *Brit. M. J.*, 1923, i, 592.

Phenol-barbital sodium (luminol sodium) treatment for hyperemesis gravidarum. R. LUIKART. *Am. J. Obst. & Gynec.*, 1923, xxv, 410. [153]

Eclampsia. S. C. RUNNELS. *J. Am. Inst. Homeop.*, 1923, xv, 902. [153]

My improved method for the prophylactic treatment of eclampsia. STROGANOFF. *J. Obst. & Gynec. Brit. Emp.*, 1923, xxx, 1.

The pyelonephritis of pregnancy. P. COUINAUD. *Med. Press*, 1923, n. s. cxv, 320.

Nephrolithiasis as a complication of pregnancy. A. P. HEINECK. *Med. Herald*, 1923, xlii, 114.

Pregnancy in a case of nephrectomy for bacillosis. M. FAVREAU and F. QUERRIOUX. *Presse méd., Par.*, 1923, xxxi, 146. [154]

The pathogenesis and treatment of apoplexy of the placenta. L. PORTES. *Gynéc. et obst.*, 1923, vii, 56. [154]

A case of placenta prævia. MENDIGUCHIA. *Arch. de med., cirug. y especial.*, 1923, x, an. Soc. ginec. españ., 38.

A consideration of the causes of stillbirths and neonatal deaths. H. BAILEY. *Arch. Pediat.*, 1923, xl, 226.

Labor and Its Complications

The "twilight sleep" of scopolamine and physiological labor. J. A. BERUTI. *Rev. argent. de obst. y ginec.*, 1923, vii, 32.

A safe and practical method of administering scopolamine-morphine anæsthesia in obstetrics. B. VAN HOENSEN. *N. Orleans M. & S. J.*, 1923, lxxv, 531. [154]

Dystocia due to an ovarian cyst. BOTELLA. *Arch. de med., cirug. y especial.*, 1923, x, an. Soc. ginec. españ., 46.

The use of the Champetier de Ribes bag. J. B. GONZALES. *Rev. argent. de obst. y ginec.*, 1923, vii, 19.

Occiput posterior. A. M. MENDENHALL. *J. Indiana State M. Ass.*, 1923, xvi, 121.

A procedure to facilitate version by internal manoeuvres in cases of transverse presentation with the escape of amniotic fluid. L. DIAS. *Rev. méd. d. Rosario*, 1923, xiii, 83.

The management of the third stage of labor. C. A. GORDON. *Am. J. Obst. & Gynec.*, 1923, v, 403. [155]

The La Torre method of effecting hæmostasis. POLEMICHE. *Clin. ostet.*, 1923, xxv, 37.

Craniotomy. A. M. MENDENHALL. *Am. J. Obst. & Gynec.*, 1923, v, 372.

Transperitoneal cesarean section of the lower uterine segment in fifty cases. P. GAIFAMI. *Rev. franç. de gynéc. et d'obst.*, 1923, xviii, 33. [155]

Cesarean section under local anæsthesia. W. E. MOWERY. *Med. Herald*, 1923, xlii, 111. [156]

Complications of labor a cause of intracranial hæmorrhage. O. F. CONKEY. *Arch. Pediat.*, 1923, xl, 239.

Puerperium and Its Complications

Concerning milk cysts: galactoceles. A. SSIROTKIN. *Moskow. M. J.*, 1922, ii, 34. [156]

The proteopectic function of the liver in the normal and pathological puerperium. M. L. PEREZ. *Rev. argent. de obst. y ginec.*, 1923, vii, 37.

Intermediate cervical repair following confinement. T. COFFEY. *California State J. M.*, 1923, xxi, 153.

Suppression of urine after labor. A. W. OWEN. *Brit. M. J.*, 1923, i, 630.

Acute puerperal inversion of the uterus. C. S. L. ROBERTS. *Brit. M. J.*, 1923, i, 557. [156]

Inversion of the uterus occurring in the third week of the puerperium. W. R. WHITE-COOPER and H. K. GRIFFITH. *Proc. Roy. Soc. Med., Lond.*, 1923, xvi, Sect. Obst. & Gynec., 48.

Mechanical ileus during the puerperium. W. MOELLER. *Monatsschr. f. Geburtsh. u. Gynaekol.*, 1922, lix, 273.

Puerperal infection. C. ACHARD. *Med. Press.*, 1923, n. s. cxv, 297.

More about the prevention of puerperal fever and something about its successful treatment. S. HARNSEBERGER. *Am. Med.*, 1923, xxix, 217.

The use of continuous drip irrigation in puerperal fever. A. WAGNER. *Deutsche med. Wchnschr.*, 1922, xlviii, 1577.

Serotherapy and chemotherapy in puerperal infection. E. BUMM. *Med. Klin.*, 1923, xix, 1. [157]

The uterine exudate in puerperal endometritis. L. G. GREE. *Siglo méd.*, 1923, lxx, 182.

Treatment of puerperal endometritis. L. G. GRET. *Siglo méd.*, 1923, lxx, 230.

Newborn

A practical infant incubator. F. W. GRAVELLE. *Arch. Pediat.*, 1923, xl, 246.

An unusual fetal monstrosity. M. H. CLARK. *Wisconsin M. J.*, 1923, xxi, 500.

Two fetu papyracei with a third living child. C. C. WALLIN. *Northwest Med.*, 1923, xxii, 140.

Resuscitation of asphyxiated infants: a new use for the Politzer bag. H. FEAGLES. *Northwest Med.*, 1923, xxii, 139.

The saliva of the nursing. A. HYMANSON and H. DAVIDSOHN. *Am. J. Dis. Child.*, 1923, xxv, 302.

Nutrition of the newborn from the obstetrician's standpoint. H. C. WILLIAMSON. *Arch. Pediat.*, 1923, xl, 253.

Convulsions of the newborn. J. ORRICO. *Semana méd.*, 1923, xxx, 624.

Tetanus neonatorum. P. L. PARRISH. *Arch. Pediat.*, 1923, xl, 261.

A case of persistent jaundice in an infant. B. MYERS. *Lancet*, 1923, cciv, 844.

A statistical analysis of the causes of palpable lymph glands in the newborn. L. DUNN and H. L. DUNN. *Am. J. Dis. Child.*, 1923, xxv, 319.

Hæmorrhage in the newborn. L. E. LEAVENWORTH. *Ohio State M. J.*, 1923, xix, 265.

Bleeding and coagulation in the first week of life. D. H. SHERMAN and H. R. LOHNES. *N. York State J. M.*, 1923, xxiii, 146.

The diagnosis of congenital lues in the newborn and in nursing babies. A. B. MARFAN. *Presse méd., Par.*, 1923, xxxi, 373.

Postmortem findings in the newborn. H. C. McDOWELL. N. York State J. M., 1923, xxiii, 143.

Miscellaneous

The technique and organization of the Los Angeles maternity service. L. G. McNEILE. California State J. M., 1923, xxi, 158.

Obstetrico-gynecological diagnosis. A. P. LEIGHTON. Am. J. Obst. & Gynec., 1923, v, 415.

The new midwifery: preventive and reparative obstetrics. J. W. BALLANTYNE. Brit. M. J., 1923, i, 617.

Relation of immediate intermediary operation to obstetrics. J. L. BUBIS. Ohio State M. J., 1923, xix, 259.

Maternal mortality. W. B. HENDRY. Canadian M. Ass. J., 1923, xiii, 252.

GENITO-URINARY SURGERY

Adrenal, Kidney, and Ureter

A contribution to the study of hypernephroma. F. SPECIALE. Policlin., Rome, 1923, xxx, sez. prat., 207. [158]
Hypernephroma after an accident. RUECKART. Deutsche med. Wchnschr., 1923, xlix, 384.

A case of acute bilateral suprarenal hæmorrhage. A. G. M. SEVERN. Lancet, 1923, cciv, 646.

Extrapleural-extraperitoneal approach to the adrenal through the diaphragm. A. MELNIKOFF. Zentralbl. f. Chir., 1923, i, 336.

A right perirenal tumor; section of the vena cava and circular suture; postoperative anuria; recovery. ROBINEAU. Bull. et mém. Soc. de chir. de Par., 1923, xlix, 150.

Double kidney. D. N. EISENDRAH. Ann. Surg., 1923, lxxvii, 450.

An interesting case of reno-ureteral anomaly. ROMANI. Arch. ital. di chir., 1923, vi, 721.

Remarks on 206 cases of nephroptosis. F. G. ROSSI. Rev. de med. y cirug. de la Habana, 1923, xxviii, 1. [158]

Roentgenological methods for the recognition of ptosis of the kidney—pneumoperitoneum. M. L. NEMENOFF. Westnik Roentgenol. i Radiol., 1922, i, 377. [158]

Urinary secretion constants in surgical practice. ROLANDO. Arch. ital. di chir., 1923, vi, 719.

The value of the phenolsulphonaphthalein test of renal function. TARDO. Arch. ital. di chir., 1923, vi, 722.

Suggestion for a standard technique in the application of the phenolsulphonaphthalein test in the determination of the relative functional capacity of the two kidneys. H. M. YOUNG. J. Missouri State M. Ass., 1923, xx, 117. [158]

Anatomical changes in the kidney with reference to the results of functional examination. TARDO. Arch. ital. di chir., 1923, vi, 723.

Examination of renal function with phenolsulphonaphthalein. MELANOTTE. Arch. ital. di chir., 1923, vi, 724.

The relation of the phenolsulphonaphthalein excretion and Ambard's coefficient to the change in chloride secretion. NEGRO. Arch. ital. di chir., 1923, vi, 724.

The determination of phenolsulphonaphthalein excretion in the presence of hæmaturia. J. Am. M. Ass., 1923, lxxx, 1216.

Comparative studies of the histologic lesions of the kidney and of its functional examination. F. RATHERY. Arch. d. mal. d. reins et d. organes génitaux-urinaires, 1923, i, 317.

Glycosuria and glycæmia. S. E. BERMAN. Semana méd., 1923, xxx, 764.

The quantity of uric acid eliminated in the urine. M. RAUGIER. J. de méd. de Bordeaux, 1923, xcv, 232.

Hypoplasia of the kidneys and atresia of the urethra. H. DIECKMANN. Arch. f. path. Anat. u. Physiol., 1923, ccxli, 401.

Renal counterbalance: an experimental and clinical study with reference to the significance of disuse atrophy. F. HINMAN. J. Urol., 1923, ix, 289. [158]

Reflex anuria. J. F. MCCARTHY, J. A. KILLIAN, and A. F. CHACE. J. Am. M. Ass., 1923, lxxx, 1043.

The technique of perirenal insufflation. M. CHEVASSU. Bull. et mém. Soc. de chir. de Par., 1923, xlix, 189.

Remarks on pyelography at a lantern demonstration before the Congress of Radiology and Physiotherapy. J. THOMSON-WALKER. Arch. Radiol. & Electrotherapy, 1923, xxvii, 334.

Congenital left hydronephrosis recognized in the course of gastro-intestinal infection in a child of 9 years; primary nephrostomy; secondary nephrectomy. H. L. ROCHER and R. DARGET. Presse méd., Par., 1923, xxxi, 377.

A large congenital hydronephrosis. BONANOME. Arch. ital. di chir., 1923, vi, 721.

A large hydronephrosis from kinking of the ureter over an abnormal blood vessel in a child of 13 years; transperitoneal nephrectomy by the anterior route. A. CHALIER. Bull. et mém. Soc. de chir. de Par., 1923, xlix, 501.

Hydronephrosis due to abnormal blood vessels. MARION and BAZY. Bull. et mém. Soc. de chir. de Par., 1923, xlix, 574.

Hydronephrosis from angulation of the ureter over an abnormal blood vessel. P. BAZY. Bull. et mém. Soc. de chir. de Par., 1923, xlix, 526.

Spontaneous rupture of a hydronephrosis. W. Q. WOOD. Brit. J. Surg., 1923, x, 574.

The major syndromes of renal pathology. M. LABBE. Arch. de med., cirug. y especial., 1923, xi, 145.

On the passage of the staphylococcus aureus through the kidney of the rabbit. S. C. DYKE. J. Path. & Bacteriol., 1923, xxvi, 164.

Gonococcal infection of the kidney with spontaneous recovery. R. L. DOORMASHKIN and H. COHEN. J. Am. M. Ass., 1923, lxxx, 1052.

Tuberculosis in kidneys with two pelves and two ureters. E. PERMAN. Acta chirurg. Scand., 1923, lv, 591.

A very early case of renal tuberculosis. E. H. MENSING and W. THALHIMER. Wisconsin M. J., 1923, xxi, 507.

Renal tuberculosis: diagnosis and treatment. H. D. FURNESS. Am. J. Obst. & Gynec., 1923, v, 386.

Renal tuberculosis, renal colic in the remaining kidney, recovery. CHIAUDANO. Arch. ital. di chir., 1923, vi, 719.

Pyelitis. G. S. GORDON. Canadian M. Ass. J., 1923, xiii, 255.

Pyelitis in infants and children. J. A. RAWLINGS and H. LEIGH. Texas State J. M., 1923, xviii, 600.

Lavage of the kidney pelvis. E. PAPIN. Arch. d. mal. d. reins et d. organes génitaux-urinaires, 1923, i, 280. [159]

Grave renal hæmaturias due to blood-vessel changes in the papillæ, with the report of an unusual case requiring nephrectomy. G. MACGOWAN. J. Urol., 1923, ix, 331.

A consideration of diseases of the upper urinary tract. A. M. CRANCE. Am. J. Surg., 1923, xxxvii, 81.

Traumatic hæmorrhagic nephritis. C. J. MACGUIRE, JR. Surg. Clin. N. Am., 1923, iii, 489.

The surgical treatment of nephritis. A. P. MARTIN. Siglo méd., 1923, lxx, 128.

Abscess of the kidney recognized by the aid of the X-ray. V. REVESZ. Roentgenologia, 1922, i, 5.

Pyonephrosis. I. SIMONS. J. Urol., 1923, ix, 367.

Heminephrectomy for pyonephrosis of a horseshoe kidney. W. CARL. *Zentralbl. f. Chir.*, 1923, I, 506.

The diagnosis and management of calculi in the upper urinary tract. N. S. MOORE. *J. Missouri State M. Ass.*, 1923, XX, 113.

The exact localization of renal calculi by radiography of the profile in the course of perirenal insufflation. BAZY and LAGARENNE. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 405.

The diagnosis and treatment of renal calculi. S. PASCUAL. *Med. Ibera*, 1923, vii, 216.

Bone suppuration the basic cause of renal calculus in twenty cases following war wounds. H. E. PAUL. *J. Urol.*, 1923, ix, 345.

A case of lithiasis of both kidneys and the right ureter; right nephrolithotomy and ureterolithotomy; left pyelolithotomy; recovery. F. ROSSI. *Arch. ital. di chir.*, 1923, vi, 720; vii, 204.

Giant calculus of the kidney. ROLANDO. *Arch. ital. di chir.*, 1923, vi, 719.

Grave hæmaturia secondary to pyelotomy for stones in the pelvis; secondary nephrectomy. GIANNETTASIO. *Arch. ital. di chir.*, 1923, vi, 659.

Free transplant of muscle in nephrotomy wounds. CIMINATA. *Arch. ital. di chir.*, 1923, vi, 661.

Contribution to surgery of both kidneys. BORETTI. *Arch. ital. di chir.*, 1923, vi, 720.

Nephrectomy with the removal of a segment of the vena cava receiving the two renal veins. P. DELBET. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 200.

Aseptic wounds of the kidney. MIRIZZI and GONZALEZ. *Rev. méd. d. Rosario*, 1923, xiii, 20.

Report of an unusual case of ureteral anomaly. C. H. WATT. *J. Med. Ass. Georgia*, 1923, xii, 152.

Megalo-ureter: the importance of the ureterovesical valve. J. R. CAULK. *J. Urol.*, 1923, ix, 315. [159]

Stricture of the ureter. A. I. DODSON. *Virginia M. Month.*, 1923, I, 28.

Calculi in the pelvic portion of the ureter. FERRIA. *Arch. ital. di chir.*, 1923, vi, 726.

Intravesical cystic dilatation of the inferior portion of the ureter treated by diathermy. D'AGATA. *Arch. ital. di chir.*, 1923, vi, 720.

The diagnosis and treatment of ureteral calculi. G. T. THOMAS. *Minnesota Med.*, 1923, vi, 226.

Total nephro-ureterectomy secondary to paravesical lithiasis of the ureter, with pyonephrosis. TADDEI. *Arch. ital. di chir.*, 1923, vi, 719.

Bladder, Urethra, and Penis

A modified lens for cystoscopy. BRUNI. *Arch. ital. di chir.*, 1923, vi, 725.

The value of the cystoscope in the diagnosis of diseases in the upper urinary tract. C. G. HOFFMAN. *Kentucky M. J.*, 1923, xxi, 196.

Radiographs of the surface and profile of the bladder. P. DUVAL and H. BÉCLÈRE. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 238.

Contracture of the neck of the bladder. PEDROSO. *Rev. méd. d. Sevilla*, 1923, xlii, 25.

Spontaneous rupture of the bladder in encephalitis lethargica; suture; recovery. PIERRUCCI. *Arch. ital. di chir.*, 1923, vi, 727.

Traumatic rupture of the bladder; complete necrosis and elimination of the internal wall; spontaneous restoration. CARRARO. *Arch. ital. di chir.*, 1923, vi, 726.

Fracture of the pelvis and rupture of the bladder: recovery. T. H. HANCOCK. *Internat. J. Surg.*, 1923, xxxvi, 146.

An unusual case of multiple diverticula of the bladder. MASSETTI. *Arch. ital. di chir.*, 1923, vi, 725.

A case of an osseous fragment in the bladder. J. ESCOBAR. *Prog. de la clin.*, Madrid, 1923, xxv, 307.

A curious case of foreign body in the bladder. GARDINI. *Arch. ital. di chir.*, 1923, vi, 726.

Vesical lues. PIERRUCCI. *Arch. ital. di chir.*, 1923, vi, 727.

Fleeting ulcer of the urinary bladder. J. E. CABELIER. *Rept. de med. y cirug.*, 1923, xiv, 217.

Tumors of the bladder. E. BEER. *Surg. Clin. N. Am.*, 1923, iii, 423.

Treatment of vesical tumors with the high-frequency current. PELLECCIA. *Arch. ital. di chir.*, 1923, vi, 727.

A case of adenoma and vesical varix. CARRARO. *Arch. ital. di chir.*, 1923, vi, 726.

Angiomyoma of the urinary bladder. F. KIDD and H. M. TURNBULL. *Surg., Gynec. & Obst.*, 1923, xxxvi, 467. [159]

A case of total gangrene of the vesical mucosa. VOLANTE. *Arch. ital. di chir.*, 1923, vi, 725.

An unusual lesion of the urinary bladder. P. PARA. *Policlin.*, Rome, 1923, xxx, sez. prat., 496.

The treatment of carcinoma of the bladder. W. NEILL, JR. *South. M. J.*, 1923, xvi, 292.

The disposition of the ureters in certain abnormal conditions of the urinary bladder. W. E. LOWER. *J. Am. M. Ass.*, 1923, lxxx, 1200. [159]

Bladder surgery in relation to the fourth era of surgery. R. T. MORRIS. *Am. J. Obst. & Gynec.*, 1923, v, 392.

Peri-urethral adenoma. LILLA. *Arch. ital. di chir.*, 1923, vi, 727.

Symptoms and treatment of urethral traumatism. C. ROMERO. *Clin. y lab.*, 1923, I, 352.

Chronic urethritis in women. C. R. CÔTÉ and G. G. SMITH. *Boston M. & S. J.*, 1923, clxxxviii, 596. [160]

Diagnostic errors in posterior urethritis and prostatitis. C. QUARTERMAN. *J. Med. Ass. Georgia*, 1923, xii, 140.

A deep urethral syringe: simple and inexpensive adaptation of the bulb type. H. J. SCHERCK and W. E. JOST. *J. Am. M. Ass.*, 1923, lxxx, 1069.

Primary syphiloma of the urethra. LILLA. *Arch. ital. di chir.*, 1923, vi, 727.

Primary carcinoma of the urethra. H. CULVER and N. K. FORSTER. *Surg., Gynec. & Obst.*, xxxvi, 473.

Anæsthesia of the urethra and bladder with cocaine. PAVONE. *Arch. ital. di chir.*, 1923, vi, 725.

Essential priapism. ALESIO. *Arch. ital. di chir.*, 1923, vi, 728.

Pseudohermaphroditism or complete hypospadias. F. R. HAGNER and H. B. KNEALE. *Surg., Gynec. & Obst.*, 1923, xxxvi, 495.

Genital Organs

Chronic incomplete retention of urine from an accessory prostatic gland. CARRARO. *Arch. ital. di chir.*, 1923, vi, 726.

Prostatic obstruction. A. R. STEVENS. *Surg. Clin. N. Am.*, 1923, iii, 549.

Prostatic obstructions. H. W. HOWARD. *Northwest Med.*, 1923, xxii, 129.

The treatment of prostatic hypertrophy with the high-frequency current. DUREUX and LARAN. *Bruxelles-méd.*, 1923, iii, 620.

An instrument for incision of the vesical mucosa in suprapubic prostatectomy. MARTINI. *Arch. ital. di chir.*, 1923, vi, 718.

A device for hæmostasis and drainage following suprapubic prostatectomy. J. H. CUNNINGHAM. *Surg., Gynec. & Obst.*, 1923, xxxvi, 569.

Complications and mortality causes following prostatectomy. W. G. SCHULTE. *Northwest Med.*, 1923, xxii, 132.

A rare complication in the postoperative course of a prostatectomy by Freyer's method. BRUNI. *Arch. ital. di chir.*, 1923, vi, 725.

Late results of prostatectomy. GARDINI. *Arch. ital. di chir.*, 1923, vi, 715.

Cancer of the prostate. G. G. SMITH. *Boston M. & S. J.*, 1923, clxxxviii, 621.

Carcinoma of the prostate cured by radium. G. NICOLICH. *Policlin.*, Rome, 1923, xxx, sez. prat., 494.

A type of febrile orchitis in infancy due to torsion of the hydatid of Morgagni. A. MOUCHET. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 550.

Chronic, non-specific epididymitis and orchitis. CRESCENZI. *Arch. ital. di chir.*, 1923, vi, 662.

Non-specific orchitis and epididymitis. G. CRESCENZI. *Arch. ital. di chir.*, 1923, vii, 145.

Torsion of the testis. H. WEITZ. *Deutsche med. Wchnschr.*, 1923, xlix, 384.

Functional changes following Ombrédanne's operation for cryptorchidism in an adult. DELFINO. *Arch. ital. di chir.*, 1923, vi, 727.

Ectopic testis. CACCIA. *Arch. ital. di chir.*, 1923, vi, 661.

Torsion of an ectopic testis in a child 14 years of age. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 201.

Free transplantation of testis. H. BURCKHARDT and F. C. HILGENBERG. *Deutsche Ztschr. f. Chir.*, 1923, clxxvii, 43.

Puncture of the testicle in the cadaver and pathologico-anatomical control of the result. E. MUHSAM. *Klin. Wchnschr.*, 1922, i, 2572.

Cancer of the testis. GAY-BONNET. *Bull. et mém. Soc. e chir. de Par.*, 1923, xlix, 173.

Surgery of the seminal vesicles. E. G. MARK. *J. Oklahoma State M. Ass.*, 1923, xvi, 92.

Anastomosis of the vas deferens. V. SALVO. *Policlin.*, Rome, 1923, xxx, sez. prat., 521.

Genital tuberculosis in males and the result of treatment, particularly the result of epididymectomy. F. RYDGAARD. *Arch. f. klin. Chir.*, 1923, cxiii, 758.

Miscellaneous

Observations with comments on a study of the urinary tract of eighty fetuses and young infants. G. V. A. BROWN and C. CORBEILLE. *Am. J. Obst. & Gynec.*, 1923, v, 358. [160]

Urological diagnosis from the standpoint of the general practitioner. L. T. PRICE. *Virginia M. Month.*, 1923, 1, 30.

Causes of error in the roentgenological diagnosis of calculus of the urinary tract. P. DONDERO. *Policlin.*, Rome, 1923, xxx, sez. prat., 169. [160]

Gonorrhoea and its complications in the male; transillumination of the urethra as a diagnostic aid. N. E. ARONSTAM. *Internat. J. Surg.*, 1923, xxxvi, 157.

Keratoderma blennorrhagica. H. L. KRETSCHMER. *J. Am. M. Ass.*, 1923, lxxx, 993. [161]

Rare localization of a simple chancre. J. MAY. *Rev. méd. d. Uruguay*, 1923, xxvi, 119.

The "local" Wassermann reaction: a new diagnostic aid in primary syphilis. D. STERN and H. RYPINS. *Minnesota Med.*, 1923, vi, 167. [161]

The intravenous injection of urotropin in inflammatory processes of the urinary tract. ROMANI and BOSMIN. *Arch. ital. di chir.*, 1923, vi, 722.

Hæmaturia—a urological danger signal. E. O. SWARTZ. *Cincinnati J. M.*, 1923, vi, 83.

Associated hæmoptysis and hæmaturia. A. CHABÉ. *J. de méd. de Bordeaux*, 1923, xcv, 282.

Defective diet as a cause of sterility: final report of fertility studies in the albino rat. D. MACOMBER. *J. Am. M. Ass.*, 1923, lxxx, 978.

The treatment of sterility by means of diathermy. C. A. CASTAÑO and J. F. M. GÓMEZ. *Semana méd.*, 1923, xxx, 577.

Sperm culture. G. BARBELLION. *Bruxelles-méd.*, 1923, iii, 617.

Pre-cancerous and early cancerous lesions of the genitourinary tract. J. R. DILLON. *California State J. M.*, 1923, xxi, 148.

SURGERY OF THE BONES, JOINTS, MUSCLES, TENDONS

Conditions of the Bones, Joints, Muscles, Tendons, Etc.

Functional exostosis. CURCIO. *Arch. ital. di chir.*, 1923, vi, 709.

Changes in the skeleton as the cause of calcification. F. SCHULZE. *Mitt. a. d. Grenzgeb. d. Med. u. Chir.*, 1923, xxxvi, 243.

Fissure formation in the bones and slow fractures in so-called "hunger disease" of the bones. SEELIGER. *Arch. f. klin. Chir.*, 1923, cxiii, 588.

Spontaneous rickets in rats. V. KORENCHESKY. *J. Path. & Bacteriol.*, 1923, xxvi, 222.

The influence of the removal of the sexual glands on the skeleton and on animals kept on normal or rickets-producing diets. V. KORENCHESKY. *J. Path. & Bacteriol.*, 1923, xxvi, 207.

On the diagnostic and therapeutic importance of some typical tender bone points. R. BASTIANELLI. *N. York M. J. & Med. Rec.*, 1923, cxvii, 125. [162]

The morphology of the blood in pneumococcus infections of bones and joints. A. A. KOSLOWSKI. *Verhandl. d. Russ. Chir. Pirogoff-Ges.*, Petrograd, 1922.

Trauma and tuberculosis of bones and joints. F. ZOLLINGER. *Schweiz. med. Wchnschr.*, 1922, lii, 1105, 1126, 1154.

An unusual form of multiple tuberculosis of the metaphyses in a child. H. BURCKHARDT. *Fortschr. a. d. Geb. d. Roentgenstrahlen*, 1923, xxx, 295.

Heliotherapy in infectious diseases of the bone and joints. E. S. GEIST. *Minnesota Med.*, 1923, vi, 263.

The diagnosis of syphilis of the diaphyses of the long bones. C. DAMBRIN and G. MIGENIAC. *Arch. franco-belges de chir.*, 1923, xxvi, 114. [162]

A case of bilateral infantile osteo-arthritis deformans. DONATI. *Arch. ital. di chir.*, 1923, vi, 712.

Koehler's disease. H. LAURELL. *Hygiea*, Stockholm, 1922, lxxxiv, 500.

The etiology of Koehler's disease. DUERIG. *Muenchen. med. Wchnschr.*, 1923, lxx, 362.

The symptoms of acute osteomyelitis. D. E. ROBERTSON. *Canadian M. Ass. J.*, 1923, xiii, 262.

Osteitis fibrosa. R. L. KNAGGS. *Brit. J. Surg.*, 1923, x, 487.

Bone tumors: sarcoma, periosteal group. Ossifying type—benign ossifying periostitis and myositis. J. C. BLOODGOOD. *J. Radiol.*, 1923, iv, 119.

Joint mice. A. HARTWICH. *Arch. f. klin. Chir.*, 1922, cx, 732. [162]

Regarding the spontaneous development of joint mice. E. ROESENER. *Muenchen. med. Wchnschr.*, 1922, lxix, 1757.

The joint capsule and joint mice in a case of adhesive arthritis deformans. F. KROH. Arch. f. orthop. u. Unfall-Chir., 1922, xxi, 267.

An investigation regarding the action of phenol-camphor in the joints. A. HEDRI. Arch. f. klin. Chir., 1922, cxxii, 281.

The action of phenol-camphor on the joint cartilages. G. AXHAUSEN. Zentralbl. f. Chir., 1923, l, 434.

The anatomical structure of nearthroses. T. KALIMA. Aesti arst, 1922, i, 258. [162]

Notes on the arthritides. S. J. MEYERS. Kentucky M. J., 1923, xxi, 190.

Atrophic arthritis. L. T. SWAIM. Rhode Island M. J., 1923, vi, 51.

Suppurative arthritis cured by Willem's treatment. AUVRAY. Bull. et mém. Soc. de chir. de Par., 1923, xlix, 58.

Suppurative arthritis and osteomyelitis. H. AUCHINCLOSS. Ann. Surg., 1923, lxxvii, 497.

The treatment of ankylosis of gonorrhoeal origin by auto-gonococcus serum. F. PASTRO. Med. Ibera, 1923, vii, 293.

Anatomical and histogenetic studies of the interosseous membrane. H. BOEKER. Arch. f. klin. Chir., 1923, cxxiii, 796.

A clinical study of thirty cases of muscular dystrophy. R. V. FUNSTEN. J. Bone & Joint Surg., 1923, v, 190.

Myositis ossificans and Volkmann's paralysis. W. R. BRISTOW. Brit. J. Surg., 1923, x, 475.

Four cases of traumatic myositis ossificans. P. BULL. Norsk Mag. f. Lægevidensk., 1922, lxxiii, 992.

A contribution on so-called myositis ossificans progressive. W. LOEHR. Deutsche Ztschr. f. Chir., 1922, clxxv, 238. [162]

Tumors of the tendons and tendon sheaths. ST. J. D. BUXTON. Brit. J. Surg., 1923, x, 469.

Giant-cell tumors of tendons associated with xanthelasma. R. OLLERENSHAW. Brit. J. Surg., 1923, x, 466.

The high scapula. E. TROJÁN. Gyógyászat, 1922, p. 592.

Subscapular crepitation in congenital deformities of the upper angle of the scapula. G. JEAN. J. de méd. de Bordeaux, 1923, xcv, 273.

Painful shoulder. A. E. WILCOX. Minnesota Med., 1923, vi, 245.

Osteosarcoma of the humerus: interscapulothoracic disarticulation; recurrence in the thoracic glands and pleura of the same side after more than eight years. G. DEHELLY. Bull. et mém. Soc. de chir. de Par., 1923, xlix, 506.

A case of traumatic cubitus varus. A. CONTARGYRIS. Rev. d'orthop., 1923, xxx, 161. [163]

Typhoid osteitis of the radius. A. MARTIN. Bull. et mém. Soc. de chir. de Par., 1923, xlix, 479.

Congenital radio-ulnar synostosis. SONNTAG. Beitr. z. klin. Chir., 1922, cxxvii, 716.

Insidious paralysis of the intrinsic muscles of the hand and its operative relief. B. STOOKEY. Surg. Clin. N. Am., 1923, iii, 465.

Stenosing tendovaginitis of the flexor tendon sheaths with snapping fingers. G. HAUCK. Arch. f. klin. Chir., 1923, cxxiii, 233.

Practical importance of kinesitherapy in ankylosis of the fingers. CIACCIA. Arch. ital. di chir., 1923, vi, 711.

Carious processes in the costal cartilages and their operative treatment. W. F. JASSENZKI-WOINO. Arch. f. klin. Chir., 1923, cxxiii, 345.

Chondritis and perichondritis of the ribs as a complication of typhus. M. N. KUBASOFF. Sibirski Med. J., 1922, iv, 97.

Primary infectious osteomyelitis of the ribs. F. MICHELSON. Arch. f. klin. Chir., 1922, cxxii, 314. [163]

Acute infectious spondylitis and diseases of the spinal cord. E. FRAENKEL. Fortschr. a. d. Geb. d. Roentgenstrahlen, 1923, xxx, 193.

Congenital deformity of the spine and ribs. LA FERLA. Arch. ital. di chir., 1923, vi, 710.

A case of spina bifida occulta treated surgically. E. HOELEN. Nederl. Tijdschr. v. Geneesk., 1923, lxxvii, 252.

The development of the upper vertebrae and occipitalization of the atlas. M. LUPO. Chir. d. organi di movimento, 1922, vi, 625. [163]

Three cases of sacralization of the fifth sacral vertebra. D. NEGRU. Clujul med., 1922, iii, 49. [164]

Typhoid spondylitis. F. SABRAZEA. Arch. de med., cirug. y especial., 1923, xi, 97.

Spondylitis in children. L. LEONTJEW. Verhandl. d. Russ. Chir. Pirogoff-Ges., Petrograd, 1922. [164]

Traumatic spondylitis. S. M. DUCHOWSKOI. Nowy Chir. Arch., 1922, ii, 323. [164]

A case of spondylosis rhizomelic. J. COLLIER. Proc. Roy. Soc. Med., Lond., 1923, xvi, Sect. Neurol., 47.

Some new ideas with regard to congenital scoliosis. A. MOUCHET and C. ROEDERER. Rev. d'orthop., 1923, xxx, 19. [165]

Can fixed scoliosis be cured? The value of Abbott's method. A. SARANTIS-PAPADOPOULOS. Rev. d'orthop., 1923, xxx, 35. [165]

The difficulty of diagnosis of Pott's disease, particularly at an advanced age. SALAGHI. Arch. ital. di chir., 1923, vi, 710.

A compression apparatus for the gibbus of Pott's disease. V. VEAU. Bull. et mém. Soc. de chir. de Par., 1923, xlix, 472.

Abnormalities of the fifth lumbar transverse processes associated with sciatic pain. B. H. MOORE. J. Bone & Joint Surg., 1923, v.

Osteomyelitis of the ilium in children. C. BEARSE. J. Am. M. Ass., 1923, lxxx, 991.

Some considerations of the sacro-iliac joint. C. S. L. ROBERTS. Lancet, 1923, cciv, 787.

Tuberculosis of the sacro-iliac joint. H. C. W. NUTTALL. Lancet, 1923, cciv, 839.

An unusual case of symmetrical, hereditary osteitis of the lower joints. CAMURATI. Arch. ital. di chir., 1923, vi, 713.

Hydatid cyst of the hip bone. A. BUZZI. Rev. Asoc. méd. argent., 1922, xxxv, 756. [165]

On coxa plana. H. WALDENSTROEM. Acta chirurg. Scand., 1923, lv, 577. [165]

Juvenile osteochondritis and osteo-arthritis deformans of the hip. PALAGI. Arch. ital. di chir., 1923, vi, 712.

Two cases of osteochondritis of the hip. ROBIN. Bull. et mém. Soc. de chir. de Par., 1923, xlix, 167.

The etiology and pathology of osteochondritis deformans juvenalis of the hip. M. HACKENBROCH. Arch. f. orthop. u. Unfall-Chir., 1922, xxi, 191.

Pseudarthrosis of the femur of twenty-two years' duration; recovery following operation. C. DUJARIER. Bull. et mém. Soc. de chir. de Par., 1923, xlix, 192.

Coxa valga luxans with shifting position of the head. W. BLOCK. Arch. f. klin. Chir., 1923, cxxiii, 704.

Observations of the development of the normal knee: a preliminary report. L. R. SANTE. J. Radiol., 1923, iv, 135.

Internal injuries of the knee joint. F. KOENIG. Therap. d. Gegenw., 1922, lxiii, 448. [165]

"Bucket handle" menisci. AUVRAY. Bull. et mém. Soc. de chir. de Par., 1923, xlix, 404.

A curious case of genu recurvatum from osteomyelitis of the lower end of the femur. A. LAPOINTE. Bull. et mém. Soc. de chir. de Par., 1923, xlix, 519.

- A phenomenon of the knee with luxation of the patella. LAVERMICCOCA. Arch. ital. di chir., 1923, vi, 713.
- Dessicating osteochondritis of the knee. J. MOREAU. Arch. franco-belges de chir., 1923, xxvi, 131.
- Tuberculous arthritis of the knee; cold abscess with fistula in the thigh; healing of the fistula with the anti-tuberculous vaccine of Grimberg. BAUDET and GRIMBERG. Bull. et mém. Soc. de chir. de Par., 1923, xlix, 284.
- The condyles of the tibia. P. DESCOMPS. Bull. et mém. Soc. de chir. de Par., 1923, xlix, 291.
- The condyles of the tibia. LECÈNE. Bull. et mém. Soc. de chir. de Par., 1923, xlix, 328.
- An osteosyphiloma of the upper end of the tibia. A. LAPOINTE. Bull. et mém. Soc. de chir. de Par., 1923, xlix, 316.
- Sarcoma of the tibia. C. J. MACGUIRE, JR. Surg. Clin. N. Am., 1923, iii, 489.
- The tibio-fibular synostosis. H. RAHM. Ztschr. f. orthop. Chir., 1922, xliii, 64.
- Compensatory hypertrophy of the fibula. A. GIBSON. Surg., Gynec. & Obst., 1923, xxxvi, 554.
- Anatomical types of flat-foot. NOVÉ-JOSSERAND. Rev. d'orthop., 1923, xxx, 117. [166]
- Paralytic pes cavus. GALEAZZI. Arch. ital. di chir., 1923, vi, 710.
- A procedure for the management of splay-foot. G. HOHMANN. Zentralbl. f. Chir., 1922, xlix, 1933.
- Metatarsus varus congenitus. A. SEBEK. Časop. lék. česk., 1922, lxi, 1176.
- Koehler's disease of the head of the second metatarsal. SONNTAG. Muenchen. med. Wchnschr., 1922, lxix, 1567. [166]
- Spurs of the calcaneum. C. B. TILANUS, JR. Nederl. Tijdschr. v. Geneesk., 1923, lxvii, 1906.
- Some particularities in the disposition of the plantar fascia. P. BARCO. Policlin., Rome, 1923, xxx, sez. chir., 1. [166]
- Surgery of the Bones, Joints, Muscles, Tendons, Etc.**
- Angular osteotomy. COMISSO. Arch. ital. di chir., 1923, vi, 709.
- Bone grafts. L. BÉRARD. Bruxelles-méd., 1923, iii, 497.
- The treatment of myeloid sarcoma of bone. PALMA. Arch. ital. di chir., 1923, vi, 664.
- The treatment of acute arthritis. O. AHLWEDE. Am. J. Clin. Med., 1923, xxx, 272.
- Conservative treatment of tuberculous joint and bone diseases. A. TORFS. Vlaamse geneesk. Tijdschr., 1922, iii, 745.
- Presentation of patients with open tuberculous joints treated by the closed method. SOLIERI. Arch. ital. di chir., 1923, vi, 708.
- Manipulation of stiff joints. F. G. HODGSON. J. Med. Ass. Georgia, 1923, xii, 150.
- Mobilization of stiff joints. W. C. CAMPBELL. J. Arkansas M. Soc., 1923, xix, 205.
- The prophylaxis and treatment of neurogenic contractions. BIESAISKI. Ztschr. f. aertzl. Fortbild., 1923, xx, 1.
- Transplantation of tendons. H. AUCHINCLOSS. Ann. Surg., 1923, lxxvii, 499.
- Anæsthesia of the brachial plexus. A. D. KAPLAN. Nowy Chir. Arch., 1922, ii, 344. [167]
- A new operative method for tuberculosis of the shoulder joint. A. BÁRON. Zentralbl. f. Chir., 1923, l, 477.
- The treatment of ankylosis of the shoulder. MARCONI. Arch. ital. di chir., 1923, vi, 711.
- The technique of arthrodesis of the shoulder. H. GOERRES. Arch. f. orthop. u. Unfall-Chir., 1923, xxi, 187.
- Cyst of the humerus and bone graft: end-results. A. MOUCHET. Bull. et mém. Soc. de chir. de Par., 1923, xlix, 152.
- The treatment of the flail elbow joint, with a new operation of arthrodesis. W. MERCER. Lancet, 1923, cciv, 796.
- Tendon transplantations for musculospiral paralysis. G. H. STEVENSON. Glasgow M. J., 1923, n.s.xvii, 225.
- Snapping finger. A. SCHNEE. Moskow. M. J., 1922, ii, 148. [167]
- The operative treatment of tuberculous spondylitis. B. ŠPIŠIČ. Liječ. vjesnik, 1922, xlv, 67. [167]
- The result of treatment of tuberculous spondylitis by Albee's method. CALANDRA. Arch. ital. di chir., 1923, vi, 711.
- Tenotomy of the ileopsoas; trochanterectomy. GALEAZZI. Arch. ital. di chir., 1923, vi, 713.
- Transference of the crest of the ilium for flexion contracture of the hip. W. C. CAMPBELL. South. M. J., 1923, xvi, 289.
- The treatment of multiple deformities of the lower joints. SCARLINI. Arch. ital. di chir., 1923, vi, 711.
- The production of extra-articular ankylosis of the hip. J. E. SCHMIDT. Zentralbl. f. Chir., 1923, l, 94.
- Tuberculous fistula of the right knee treated by Grimbert's colloidal vaccine. BAUDET and GRIMBERT. Bull. et mém. Soc. de chir. de Par., 1923, xlix, 359.
- Osteotomy for genu valgum. HALLOPEAU and MAUCLAIRE. Bull. et mém. Soc. de chir. de Par., 1923, xlix, 478.
- The results of a case of arthroplasty of the knee and of the temporomandibular joint. GROLO. Arch. ital. di chir., 1923, vi, 713.
- Amputations in the region of the knee joint. H. H. DIGNAN. California State J. M., 1923, xxi, 173.
- Tendon plastics for peroneal paralysis. E. BIRT. Zentralbl. f. Chir., 1923, l, 511.
- The principles and technique of surgical treatment of congenital absence of the tibia. PUTTI. Arch. ital. di chir., 1923, vi, 714.
- Ludloff's operation for hallux valgus and hollow claw-foot. J. FRAENKEL. Zentralbl. f. Chir., 1922, xlix, 1745. [167]
- A new modification of the operative treatment of hallux valgus. I. KESZLY. Orvosi hetil., 1922, lxvi, 432.
- Contractures of the tarsus with incomplete static flat-foot and their treatment. G. HOHMANN. Muenchen. med. Wchnschr., 1923, lxx, 48.
- The treatment of club-foot, congenital and acquired. E. S. GEIST. J.-Lancet, 1923, xliii, 169.
- The treatment of congenital twisted foot. SCARLINI. Arch. ital. di chir., 1923, vi, 714.
- A lateral osteoperiosteal transplant in a paralyzed foot. CALANDRA. Arch. ital. di chir., 1923, vi, 714.
- Lengthening of the tendo achillis. H. H. GREENWOOD. Brit. J. Surg., 1923, x, 483.
- Two problems resulting from kineplasty. G. B. ARANA, D. DEL VALLE, and F. WILDERMUTH. Prog. de la clin., Madrid, 1923, xxv, 309.
- Two kineplastic problems solved. G. B. ARANA, D. DEL VALLE, and F. WILDERMUTH. Surg., Gynec. & Obst., 1923, xxxvi, 559.
- Plastic cinematics in partial amputations of the foot. R. MINERVINI. Ann. ital. di chir., 1923, ii, 239.
- The advisability of early high amputation in senile gangrene of the lower extremity: with report of four cases. D. B. GILLIAM. Ohio State M. J., 1923, xix, 245.
- Cinematization of the stump. COULLAUD. Bull. et mém. Soc. de chir. de Par., 1923, xlix, 520.
- Experiences with a large number of cases of amputations, particularly with reference to prostheses. N.

SILFVERSKIÖLD and H. HANSSON. *Acta chirurg. Scand.*, 1923, lv, 602.

Amputation stumps of youths. W. VERMEIL. *Beitr. z. klin. Chir.*, 1923, cxxviii, 159.

Are amputation stumps receiving adequate after-care? C. BEARSE. *Boston M. & S. J.*, 1923, clxxxviii, 542.

The uselessness of making a "handless arm" of the heel in osteoplastic amputation of the foot. AMANTE. *Arch. ital. di chir.*, 1923, vi, 714.

Silver foil as a bandaging material in operative orthopedics. C. SPRINGER. *Ztschr. f. orthop. Chir.*, 1922, xliii, 79.

Fractures and Dislocations

Fracture clinic. M. K. SMITH. *Surg. Clin. N. Am.*, 1923, iii, 443.

Fracture hazards. M. A. AUSTIN. *J. Indiana State M. Ass.*, 1923, xvi, 129.

Microscopic examination of a spontaneous fracture. HARTMANN. *Bull. et mém. Soc. de chir.*, 1923, xlix, 328.

Fractures and their treatment. Volume 2. Fractures and their treatment, including the treatment of complicating injuries of the brain and spinal cord. H. MATTI. Berlin: Springer, 1922.

A fracture table and fluoroscopy in difficult fractures. H. M. CLUTE. *Boston M. & S. J.*, 1923, clxxxviii, 630.

Operative treatment of certain fractures of long bones. J. J. MOORHEAD. *J. Am. M. Ass.*, 1923, lxxx, 1207.

Experimental investigations on the influence of acute anæmia and splenectomy on callus formation. L. SCHOENBAUER. *Arch. f. klin. Chir.*, 1923, cxiii, 510.

On true congenital dislocation of the shoulder. D. M. GRIEG. *Edinburgh M. J.*, 1923, n.s.xxx, 157.

The technique of the operative replacement in old luxations of the shoulder. L. BAZY. *J. de chir.*, 1923, xxi, 145.

Habitual luxation of the clavicle and its management. H. VON ORTENBERG. *Med. Klin.*, 1922, xviii, 1642.

Luxation of the outer end of the clavicle. P. MOCQUOT. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 327.

Acromioclavicular luxation; good functional result following Cadnat's operation. R. SOUPAULT. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 263.

A modified extension bandage in supracondylar fracture of the humerus. E. SATTLER. *Deutsche Ztschr. f. Chir.*, 1922, clxxiv, 268.

Fracture of both bones of the forearm; double osteosynthesis with excellent functional result three months after the accident. C. DUJARIER. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 280.

A comminuted fracture of the upper one-third of the ulna with displacement in front of the head of the radius. A. MOUCHET. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 516.

Fractures of the head and neck of the radius. J. GROSSMAN. *N. York M. J. & Med. Rec.*, 1923, cxvii, 472. [168]

Luxation of the semilunar and injury of the wrist joint. J. PODLAHA. *Rozhledy v chir. a gynaek.*, 1923, ii, 129.

Bloodless reduction of dislocation of the semilunar bone. A. MOUCHET. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 152.

The pathogenesis and mechanism of fracture of the navicular bone of the hand. A. TROELL. *Acta chirurg. Scand.*, 1923, lv, 490.

Irreplaceable dorsal luxation of two metacarpophalangeal joints. SONNTAG. *Deutsche med. Wchnschr.*, 1923, xlix, 382.

Tarsal and metatarsal dislocations; reduction without operation. A. LAPORTE. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 153.

A method of reducing dislocations of the phalanges. DESCARPENTRIES. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 273.

Conservative versus operative treatment for retrosternal luxation. K. WACHENDORF. *Zentralbl. f. Chir.*, 1923, l, 514.

Spondylolisthesis. S. KLEINBERG. *Ann. Surg.*, 1923, lxxvii, 490. [168]

Traumatic luxations of the spine. A. DHALLUIN. *Arch. franco-belges de chir.*, 1923, xxvi, 97.

Compression fracture of the spine. E. P. WEIGEL. *Surg. Clin. N. Am.*, 1923, iii, 509.

Fractures of the pelvis. A. P. BEJUL. *Nowy Chir. Arch.*, 1922, ii, 351. [168]

False congenital dislocations; their treatment. F. CALOT. *Clin. y lab.*, 1923, i, 313.

Clinical reports—congenital dislocation of the hip. L. Y. LIPPINCOTT. *J. M. Soc. New Jersey*, 1923, xx, 130.

Congenital luxation of the hip in a hemiplegic girl. CHARIER. *Rev. d'orthop.*, 1923, xxx, 155. [168]

The end-results of the non-operative treatment of congenital luxation of the hip. SILBERSTEIN. *Verhandl. d. Ges. f. Chir.*, Moscow, 1922.

Bone transplantation for recurring congenital dislocation of the hip. D. MARAGLIANO. *Arch. ital. di chir.*, 1923, vi, 709.

Reformation of the acetabulum after bloodless reduction of congenital dislocation of the hip. BARGELLINI. *Arch. ital. di chir.*, 1923, vi, 712.

Partial dislocation backward of the lower epiphysis of the femur. R. W. BOLLING. *Surg. Clin. N. Am.*, 1923, iii, 361.

Fractures of the floor of the acetabulum. E. P. WEIGEL. *Surg. Clin. N. Am.*, 1923, iii, 505.

Fractures of both femora; osteosynthesis of the right femur; treatment of the fracture of the left by continued extension; excellent result on both sides. SCHWARTZ. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 358.

Spontaneous fracture of the femur. HARTMANN. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 202.

Internal conformation of the lateral condyle of the femur with respect to the diagnosis of intra-articular fracture. BERTOCCHI. *Arch. ital. di chir.*, 1923, vi, 664.

Contribution to the treatment of intracapsular fracture of the femur. PIERI. *Arch. ital. di chir.*, 1923, vi, 708.

Fifty cases of fracture of the neck of the femur. DELITALA. *Arch. ital. di chir.*, 1923, vi, 707.

Cervicotrochanteric fracture of the femur; reduction without anæsthesia; functional result. C. LENORMANT. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 285.

Statistics of cases of fracture of the neck of the femur observed at the Rizzoli Institute. VALTANCOLI. *Arch. ital. di chir.*, 1923, vi, 708.

The treatment of fracture of the neck of the femur. SOLIERI. *Arch. ital. di chir.*, 1923, vi, 708.

Contribution to the treatment of fracture of the neck of the femur with a method of autoplasmic transplantation of the fibula. DELFINO. *Arch. ital. di chir.*, 1923, vi, 707.

The treatment of fractures of the neck of the femur. ROSSI. *Arch. ital. di chir.*, 1923, vi, 706.

The results of operative treatment of fracture of the neck of the femur. PUTTI. *Arch. ital. di chir.*, 1923, vi, 707.

Traction fracture of the lesser trochanter. J. F. LANGDON. *Surg., Gynec. & Obst.*, 1923, xxxvi, 556.

Complete epiphyseal fracture of the hip. R. W. BOLLING. *Surg. Clin. N. Am.*, 1923, iii, 357.

Roentgenograms of nine cases of osteosynthesis from fracture of the femur. C. DUJARIER. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 236.

A joint mouse in the knee with fracture of the external condyle of the femur. E. P. WEIGEL. *Surg. Clin. N. Am.*, 1923, iii, 513.

Luxation of both patellæ treated by a method of patellar transposition with capsular autoplasty. A. MOUCHET. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 511.

Non-immobilization and immediate use after suture of the patella. C. DUJARIER. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 55.

Early suture and ambulatory treatment of fracture of the patella. P. FREDET. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 179.

Statistics of fractures of the leg. O. WINTERSTEIN. *Monatsschr. f. Unfallheilk. u. Versicherungsmed.*, 1922, xxix, 217.

The treatment of tibial subluxation. DE FRANCESCO. *Arch. ital. di chir.*, 1923, vi, 713.

Separation of the upper epiphysis of the tibial. A. GIBSON. *Ann. Surg.*, 1923, lxxvii, 485.

Fracture of the tibia with loss of substance. E. P. WEIGEL. *Surg. Clin. N. Am.*, 1923, iii, 517.

Congenital luxation of the tendons of the lateral peroneal muscles. E. ESTOR and A. AIMES. *Rev. d'orthop.*, 1923, xxx, 5.

Forward dislocation of the upper end of the fibula without a fracture of the tibia or fibula. R. H. SANKEY. *Arch. Radiol. & Electrotherapy*, 1923, xxvii, 344.

Pott's fracture. D. POWER. *Brit. J. Surg.*, 1923, i, 313, 433.

A compound Dupuytren fracture; operation at end of eighteen hours with immediate closure; recovery. DE SILVA DE RIO BRANCO. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 260.

Shepherd's fracture. C. P. LÓPEZ. *Semana méd.*, 1923, xxx, 580.

Subastragaloid dislocation of the foot backward and downward. R. W. BOLLING. *Surg. Clin. N. Am.*, 1923, iii, 365.

Traumatic valgus with dislocation in Lisfranc's joint. A. F. O'DONOGHUE. *J. Iowa State M. Soc.*, 1923, xiii, 151.

Old, irreducible luxation of the scaphoidocuneiform articulation with fracture of the great tuberosity of the calcaneum; open reduction, arthrodesis and bone suture. L. COURTIV. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 244.

A case of recent, irreducible luxation of the astragaloscaphoid articulation which was cured by open reduction. P. WIART. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 470.

Closed treatment of bimalleolar fractures with a posterior marginal fragment. P. CARBOUAT. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 295.

Orthopedics in General

The etiology and treatment of faulty body mechanics in childhood. J. C. WILSON. *California State J. M.*, 1923, xxi, 145.

The problem of functional re-education of the "industrial" invalid. LAVERMICOCCA. *Arch. ital. di chir.*, 1923, vi, 710.

Physiotherapy records. H. E. FURSCOTT. *California State J. M.*, 1923, xxi, 165.

Posture work in children. F. P. GENGENBACH. *Texas State J. M.*, 1923, xviii, 596.

The history and uses of plaster of Paris. J. BRYAN. *Kentucky M. J.*, 1923, xxi, 180.

Instructions for making plaster of Paris bandages. C. L. STOREY. *Grace Hosp. Bull.*, Detroit, 1923, vii, 14.

SURGERY OF THE BLOOD AND LYMPH SYSTEMS

Blood Vessels

The entrance of air into the vascular system and its removal from the right ventricle by puncture of the heart. A. BINGEL. *Zentralbl. f. Chir.*, 1923, i, 433.

Arteriovenous fistula. L. C. ZAPPELLONI. *Arch. ital. di chir.*, 1923, vi, 645.

Arterial and arteriovenous aneurisms. L. DE GAETANO. *Arch. ital. di chir.*, 1923, vi, 637.

Traumatic aneurism. PURPURA. *Arch. ital. di chir.*, 1923, vi, 641.

The surgical treatment of aneurism. PIERI. *Arch. ital. di chir.*, 1923, vi, 640.

Clinical and anatomic-pathologic observations on cirroid aneurisms. ROMITI. *Arch. ital. di chir.*, 1923, vi, 640.

A pathological study of a case of cirroid aneurism. F. L. MELENEY. *Surg., Gynec. & Obst.*, 1923, xxxvi, 547.

Mycotic (bacterial) aneurisms of intravascular origin. A. STENGEL and C. C. WOLFERTH. *Arch. Int. Med.*, 1923, xxxi, 527.

Aneurism of the carotid in the left cavernous sinus. POLLET and DECHERF. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 289.

A tear of the external carotid caused by a blow in the face. E. PÓLYA. *Zentralbl. f. Chir.*, 1923, i, 223.

Injury to the carotid artery and jugular vein, with ligation and recovery. C. S. LAWRENCE. *J. Am. M. Ass.*, 1923, lxxx, 1068.

An uncommon case of arteriovenous aneurism of the right subclavian vessels. E. CURTI. *Riforma med.*, 1923, xxxix, 318.

Aneurism of the subclavian artery. MUSCATELLO. *Arch. ital. di chir.*, 1923, vi, 642.

Traumatic aneurism of the left subclavian artery, extirpation of the sac. CASSANELLO. *Arch. ital. di chir.*, 1923, vi, 640.

Arteriovenous aneurism of the radial artery. J. F. CONNORS. *Surg. Clin. N. Am.*, 1923, iii, 569.

Obliteration of the superior vena cava of syphilitic origin. RUITINGA. *Bull. et mém. Soc. méd. d. hôp. de Par.*, 1923, 3s. xxxix, 602.

Rupture of an aneurism of the splenic artery with fatal hæmorrhage in a pregnant woman. K. LUNDWALL and A. GOEDL. *Arch. f. Gynaek.*, 1923, cxviii, 177.

Vascular occlusion of the mesenteric vessels. J. W. TANKERSLEY. *Virginia M. Month.*, 1923, i, 20.

Mesenteric thrombosis, with report of two cases. S. MCGUIRE. *Virginia M. Month.*, 1923, i, 23. [169]

A double wound of the femoral artery at the level of Hunter's canal caused by a knife; diffuse arterial aneurism; ligation; recovery. R. BAUDET. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 360.

A fusiform aneurism of the femoral artery caused by contusion. E. BUSSALAY. *Riforma med.*, 1923, xxxix, 315.

Traumatic popliteal aneurism, extirpation of the sac. MINERVINI. *Arch. ital. di chir.*, 1923, vi, 639.

A note on gluteal aneurism and rupture treated by the Antyllus operation. A. W. ADAMS. *Lancet*, 1923, cciv, 697.

Ligation of the plantar arch on the dorsum of the foot in the second interosseous space. G. B. MACAGGI. *Arch. ital. di chir.*, 1923, vi, 565.

Large varices. A. BASSET. Bull. et mém. Soc. de chir. de Par., 1923, xlix, 355.

Varicose ulcer treated by Alglave's method ten years ago; perfect recovery. ALGLAVE. Bull. et mém. Soc. de chir. de Par., 1923, xlix, 472.

Regarding Alglave's communication on the treatment of varicose ulcer. OKINCZYC. Bull. et mém. Soc. de chir. de Par., 1923, xlix, 476.

Thrombosis and embolism. A. MCLEAN and W. D. BARRETT. Chicago Med. Rec., 1923, xlv, 623.

Venous thrombosis due to effort. O. IVANISSEVICH. Semana méd., 1923, xxx, 738.

Fat embolism. J. OLBRYCHT. Polska gaz. lek., 1922, i, 468. [169]

The operative treatment of embolism of the large arteries: a report of two cases. L. BUERGER. Surg., Gynec. & Obst., 1923, xxxvi, 463.

Spontaneous necrosis of the extremities and endarteritis obliterans. F. KRAMPF. Deutsche Ztschr. f. Chir., 1922, clxxiv, 387.

Peripheral venous tension and its pathologic changes. M. VILLARET, F. SAINT GIRON and P. GRELLETY-BOSVIEL. Presse méd., Par., 1923, xxxi, 318.

The morphology and morphogenesis of the vascular system in a grafted tumor. DENTICI. Arch. ital. di chir., 1923, vi, 705.

Contribution to vascular surgery. FASANO. Arch. ital. di chir., 1923, vi, 641.

Blood and Transfusion

The mechanism of variations in the number of leucocytes. P. MAURIAC and M. MOUREAU. J. de méd. de Bordeaux, 1923, xcv, 39. [169]

The leucocytic count and its relation to various clinical diseases. W. H. HARRIS. N. Orleans M. & S. J., 1923, lxxv, 649.

Remarks on the average number of red cells in the blood of pupils of the primary schools. E. ALS. Acta med. Scand., 1923, lviii, 63.

The clinical significance of the eosinophilic cells of the blood. A. J. HINKLEMAN. N. York M. J. & Med. Rec., 1923, cxvii, 465.

Physicochemical investigation of phagocytosis. T. KANAL. Arch. f. d. ges. Physiol., 1923, cxviii, 401.

The value and importance of blood chemistry in clinical medicine. M. BARRON. Minnesota Med., 1923, vi, 238.

Physical and chemical studies of human blood serum. I. A study of normal subjects. II. A study of twenty-

nine cases of nephritis. III. A study of miscellaneous disease conditions. D. W. ATCHLEY, R. F. LOEB, E. M. BENEDICT and W. W. PALMER. Arch. Int. Med., 1923, xxxi, 606, 611, 616.

The cholesterol content of the blood in anæmia, and its relation to splenic function. W. MACADAM and C. SHISKIN. Quart. J. Med., 1923, xvi, 193.

Physicochemical consideration of the blood of scalded animals (experimental study). DELFINO. Arch. ital. di chir., 1923, vi, 704.

Modification of the rate of sedimentation of the red corpuscles in a case of malignant tumor. MIANI. Arch. ital. di chir., 1923, vi, 696.

The method of transmission of hereditary hæmophilia. P. MINO. Riforma med., 1923, xxxix, 371.

Irradiation of the spleen, liver, and bone marrow from the standpoint of hæmostasis. G. B. FULLE. Ann. ital. di chir., 1923, ii, 299.

How many human blood groups are there? P. MINO. Riforma med., 1923, xxxix, 386.

The indications for the transfusion of blood. I. S. RAVDIN. N. York M. J. & Med. Rec., 1923, cxvii, 475.

Concerning the quantity of blood administered in blood transfusion. T. HALBERTSMA. Nederl. Tijdschr. v. Geneesk., 1922, lxxvi, 1272. [169]

Transfusion through the umbilical vein in hæmorrhage of the newborn: report of a case. J. B. SIDBURY. Am. J. Dis. Child., 1923, xxv, 290.

Blood transfusion for otological diseases. H. HAYS. Laryngoscope, 1923, xxxiii, 253.

Blood transfusion for otological diseases. L. J. UNGER. Laryngoscope, 1923, xxxiii, 250.

Lymph Vessels and Glands

So-called commissural lymph glands of the cheek. E. SEIFERT. Deutsche Ztschr. f. Chir., 1922, clxxvi, 354.

Lymphangioma of the neck. J. E. THOMPSON and V. H. KEILLER. Ann. Surg., 1923, lxxvii, 385. [169]

Drainage in elephantiasis. E. KONDOLEON. Zentralbl. f. Chir., 1923, i, 443.

Malignant blastoma of the lymph glands and lymph-granuloma. V. FERRERO. Arch. ital. di chir., 1923, vi, 577.

Some observations upon the histologic changes in the lymphatic glands following exposure to radium. J. C. MOTTRAM. Am. J. M. Soc., 1923, clxv, 469. [170]

Epizootic lymphangitis. J. M. GOMES. Brazil-méd., 1923, xxxvii, 203.

SURGICAL TECHNIQUE

Operative Surgery and Technique; Postoperative Treatment

Closure of granulating wounds with Reverdin-Halsted grafts. K. SCHLAEPFER. Bull. Johns Hopkins Hosp., Balt., 1923, xxxiv, 114.

Gauze drainage in the abdominal cavity. W. DREESMANN. Zentralbl. f. Chir., 1923, i, 346.

Salt and sugar infusions. S. WIDERE. Norsk. Mag. f. Lægevidensk., 1922, lxxxiii, 454.

The treatment of postoperative nausea, vomiting, and distention in certain abdominal sections by the use of a modified duodenal tube. C. L. A. ODEN. Surg., Gynec. & Obst., 1923, xxxvi, 572.

Disfiguring scars—prevention and treatment. G. M. DORRANCE and J. W. BRANSFIELD. Am. J. M. Sc., 1923, clxv, 462.

Antiseptic Surgery; Treatment of Wounds and Infections

Wound diphtheria. H. LANDAU. Klin. Wchnschr., 1923, ii, 595.

Wound diphtheria. H. LANDAU. Arch. f. klin. Chir., 1923, cxliii, 716.

Cases of wound diphtheria in the Rostock Clinic from 1919 to 1921. ELFELD and DONGES. Beitr. z. klin. Chir., 1923, cxlvii, 562.

Experiences with rivanol. A. RITTER. Klin. Wchnschr., 1923, ii, 73.

Some impressions upon war wounds. P. MIMBELA. Gac. méd. Peruana, 1923, i, 39.

Presentation of a new germicide—meroxyl. H. H. YOUNG, E. C. WHITE, J. H. HILL, and D. M. DAVIS. Surg., Gynec. & Obst., 1923, xxxvi, 508.

Anæsthesia

The deadening of pain during surgical operations. F. KOENIG. *Med. Klin.*, 1923, xix, 195.

The practical application of anæsthesia to major surgery. R. E. FARR. *Minnesota Med.*, 1923, vi, 211.

General or local anæsthesia for abdominal operations. H. FINSTERER. *Wien. med. Wchnschr.*, 1923, lxxiii, 583.

Factors influencing the safety of ether anæsthesia. R. M. WATERS. *Nebraska State M. J.*, 1923, viii, 136.

The proper depth of an ether anæsthesia. F. R. WIDDOWSON. *Atlantic M. J.*, 1923, xxvi, 459.

Light ether anæsthesia. A. L. FLEMMING. *Bristol M. Chir. J.*, 1923, xl, 88.

Open ether for the occasional anæsthetist. A. WATERS. *Lancet*, 1923, cciv, 843.

A case of severe intoxication following nitrous oxide anæsthesia. A. SCHWARTZ. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 348.

Nitrous oxide anæsthesia. A. LAPOINTE. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 499.

Fear and chloroform. LATTERI. *Arch. ital. di chir.*, 1923, vi, 699.

Syncope from chloroform during the course of gastrectomy; subdiaphragmatic massage of the heart; recovery. PICQUET. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 215.

Morphia-hyoscine hydrobromide seminarcois preceding operation: a report of 100 cases, with fifty checks, from the obstetrical and gynecological services of Barnes Hospital. C. D. O'KEEFE. *J. Missouri State M. Ass.*, 1923, xx, 126.

Experiences with 850 intravenous narcotics. A. LEHRNBECHER. *Arch. f. klin. Chir.*, 1923, cxxiii, 317.

Safety of local anæsthesia. C. NIELSEN and J. A. HIGGINS. *J. Lab. & Clin. Med.*, 1923, viii, 440.

Epinephrin solution as a local anæsthetic. C. E. DOWMAN. *J. Am. M. Ass.*, 1923, lxxx, 1069.

Dissociation of the bulbar centers from novocaine. R. SOUPAULT. *Presse méd., Par.*, 1923, xxxi, 379.

Experimental research on electronarcosis. K. VON NEERGAARD. *Arch. f. klin. Chir.*, 1922, cxxii, 100. [171]

PHYSICO-CHEMICAL METHODS IN SURGERY**Roentgenology**

The X-rays and X-ray apparatus—an elementary course. J. K. ROBERTSON. *J. Radiol.*, 1923, iv, 112.

Further developments in the spectrometric method of March, Staunig and Fritz for the determination of the quality of X-rays. K. STAUNIG. *Arch. Radiol. & Electrotherapy*, 1923, xxvii, 328.

Pneumoradiography. ALESSANDRI. *Arch. ital. di chir.*, 1923, vi, 719.

The scope of the roentgenologist's report. C. D. ENFIELD. *J. Am. M. Ass.*, 1923, lxxx, 999.

A peculiar skiagraphic appearance probably resulting from intramuscular injections. F. P. WEBER. *Med. Press*, 1923, n.s.cvx, 338.

The treatment of malignant tumors. E. ROSENTHAL. *Fortschr. a. d. Geb. d. Roentgenstrahlen*, 1923, xxx, 233.

Intensive deep roentgen irradiation; its principles and clinical application. J. H. SCHROEDER. *Cincinnati J. M.*, 1923, iv, 74. [173]

The effect of radiation of the ovocytes on fecundation and gestation. A. LACASSAGNE and H. COUTARD. *Gynéc. et obst.*, 1923, vii, 1. [173]

Radium

Some comments on radium technique. W. H. GUY and F. M. JACOBS. *Atlantic M. J.*, 1923, xxvi, 453.

The use of plastic substances in superficial radium therapy. A. ESGUERRA, O. MONOD, and G. RICHARD. *Rept. de med. y cirug.*, 1923, xiv, 192.

The value and use of beta radium rays. P. DEGRAIS. *Presse méd., Par.*, 1923, xxxi, 145. [174]

Some results of radium and radiotherapy. BEHAEGEL. *Bruxelles-méd.*, 1923, iii, 553.

Experimental research work in radium therapy, including death, retardation of growth, prolongation of life, determination of sex, sterilization and artificial parthenogenesis reproduction without the male. H. LAWRENCE. *Med. J. Australia*, 1923, i, 463. [174]

MISCELLANEOUS**Clinical Entities—General Physiological Conditions**

Transposition of viscera. report of a case without transposition of the usual abdominal reflex. J. E. SUMMERS. *Nebraska State M. J.*, 1923, viii, 117.

Traumatic shock: some experimental work on crossed circulation. M. A. McIVER and W. W. HAGGART. *Surg., Gynec. & Obst.*, 1923, xxxvi, 542.

Cases of delayed and immediate anaphylactic shock: with a note on the circulatory phenomena. J. FAWCETT and J. A. RYLE. *Brit. M. J.*, 1923, i, 325. [176]

The pathogenesis of death from burns. R. BRANCATI. *Arch. ital. di chir.*, 1923, vi, 703.

Erythromelalgia. R. LERICHE. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 398.

Diabetes mellitus complicating surgery. A. T. JONES. *Boston M. & S. J.*, 1923, clxxxviii, 483.

The pathogenesis and treatment of spontaneous gangrene. S. S. GIRGOIAFF. *Westnik chir. i pogan oblastei*, 1922, i, 185. [176]

Microbic or traumatic spreading gangrene. E. G. GIVHANS. *Internat. J. Surg.*, 1923, xxxvi, 159.

The treatment of carbuncle. J. TEMPLADO. *Arch. de med., cirug. y especial.*, 1923, x, 435.

The modern treatment of carbuncle. ARQUELLADA and SISTO. *Pediat. españ.*, 1923, xii, 71.

Oriental sore in the United States. R. A. LAMBERT. *J. Am. M. Ass.*, 1923, lxxx, 986. [176]

The relation of the leucocyte count to intradermal and subcutaneous reactions in echinococcus-cyst carriers. C. MANASSE. *Riforma med.*, 1923, xxxix, 361.

Eleven cases of suppurating hydatid cysts treated by closure without drainage. BRUN and LAURIOL. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 35.

The causation of neoplasms by tar. L. PASZKIEWICZ. *Polska gaz. lek.*, 1922, i, 707. [177]

Granuloma inguinale in Boston. G. C. SHATTUCK. *Boston M. & S. J.*, 1923, clxxxviii, 530.

The medical practitioner and the American Society for the Control of Cancer. J. E. RUSH. *J. Med. Ass. Georgia*, 1923, xii, 161.

- Nævo-carcinoma. C. AUDRY. Bruxelles-méd., 1923, iii, 636.
 Infectious sarcoma of chickens. -G. ROUSSY and M. WOLF. Presse méd., 1923, xxxi, 391.

General Bacterial, Mycotic, and Protozoan Infections

- Some infectious syndromes of unknown etiology. D. G. MARANON. Arch. de med., cirug. y especial, 1923, x, 457.
 The doctrine of the prepared soil: a neglected factor in surgical infections. H. CABOT. J. Iowa State M. Soc., 1923, xiii, 153.
 The relation of antibody to the rate of disappearance of circulating antigen. G. M. MACKENZIE. J. Exper. Med., 1923, xxxvii, 491.
 The major infections. W. J. MAYO. Illinois M. J., 1923, xliii, 283.
 Pyogenic blood infection. A. BUZZELLO. Deutsche Ztschr. f. Chir., 1922, clxxv, 370.
 Staphylococcal and streptococcal infections of the skin. C. SIEBERT. Ztschr. f. aertzl. Fortbild., 1923, xx, 167.
 The treatment of certain surgical tuberculous affections with the colloidal antituberculous vaccine of Grimberg. R. BAUDET. Bull. et mém. Soc. de chir. de Par., 1923, xlix, 422.
 The treatment of surgical tuberculosis with antituberculosis vaccines. L. BAZY. Bull. et mém. Soc. de chir. de Par., 1923, xlix, 576.
 The treatment of so-called surgical tuberculosis. H. CHAUL. Jahresh. f. aertzl. Fortbild., 1922, xiii, 1. [177]
 The treatment of the surgical complications of typhoid and paratyphoid by antityphoid and antiparatyphoid vaccine. G. WOLFSOHN. Prog. de la clin., Madrid, 1923, xlix, 385.
 Gas gangrene: some symptoms and complications. J. ESCOBAR and A. L. MUNIZ. Prog. de la clin., Madrid, 1923, xxv, 449.
 Recurrent migratory erysipelas cured by milk protein therapy. T. DE A. SAMORA. Siglo méd., 1923, lxx, 340.
 The treatment of tetanus by serum. D. W. KELLY. N. Orleans M. & S. J., 1923, lxxv, 615.
 Studies on the relation of tetanus bacilli in the digestive tract to tetanus antitoxin in the blood. C. TENBROECK and J. H. BAUER. J. Exper. Med., 1923, xxxvii, 479.
 The mechanism of bacteriostasis. J. W. CHURCHMAN. J. Exper. Med., 1923, xxxvii, 543.
 Actinomycosis of the right iliac fossa. R. S. BROCKMAN. Brit. J. Surg., 1923, x, 456.
 Infection from actinomyces carnosus. G. CRESCENZI. Arch. ital. di chir., 1923, vii, 1.
 Madura foot and mycetoma. C. P. LÓPEZ. Semana méd., 1923, xxx, 629.
 Blastomycosis in Kentucky. S. GRAVES. Kentucky M. J., 1923, xxi, 199.

Ductless Glands

- The action of extracts of endocrine glands upon motor nerve and skeletal muscle. M. YOSHIMOTO. Quart. J. Exper. Physiol., 1922, xiii, 5.
 The action of the blood serum of animals in tetania parathyreopriva on motor nerves and striated muscle. M. YOSHIMOTO. Quart. J. Exper. Physiol., 1922, xiii, 41.

Experimental Surgery

- Some recent developments in surgical research. J. E. SWEET. Pennsylvania M. J., 1923, xxvi, 396. [177]

Investigations on the effect of Payr's pepsin-Pregl solution. L. FRANKENTHAL. Arch. f. klin. Chir., 1923, cxxiii, 415.

The effect of the medium upon the resistance of bacteria. Investigation on disinfection with heat. L. FLEISCHER and S. AMSTER. Ztschr. f. Hyg. u. Infektionskrankh., 1923, xcix, 209.

The resistance of streptococci to mercuric chloride, carbolic acid, and trypanflavin. K. RODEWALD. Ztschr. f. Hyg. u. Infektionskrankh., 1923, xcix, 117.

The influence of sodium salicylate upon the arthritis of rabbits inoculated with non-hæmolytic streptococci. H. F. SWIFT and R. H. BOOTS. J. Exper. Med., 1923, xxxvii, 553. [179]

The action of the electric current upon ordinary pyogenic organisms and upon infected wounds produced in experimental animals. NICASTRO. Arch. ital. di chir., 1923, vi, 705.

Clinical and experimental symbiosis of tubercle bacilli. BATTAGLIA. Arch. ital. di chir., 1923, vi, 704.

Experimental research upon autoplasmic and homoplastic grafting of skin. FASIANI. Arch. ital. di chir., 1923, vi, 656.

The cultivation of tissues and tumors *in vitro*. A. H. DREW. Lancet, 1923, cciv, 785, 833.

Skin burns caused by extreme heat: pathologic-anatomical and experimental research. H. SCHRIDDE. Klin. Wchnschr., 1922, i, 2563.

Experimental studies on inflammation. II. Experimental chemical inflammation *in vivo*. E. P. WOLF. J. Exper. Med., 1923, xxxvii, 511.

The rôle of the oxidizing ferments in the mechanism of thermogenesis and fever. M. G. MARINESCO. Presse méd., Par., xxxi, 153. [179]

Hospitals: Medical Education and History

The problem of hospital costs and the training school problem from the viewpoint of a surgeon. E. M. STANTON. N. York State J. M., 1923, xxiii, 160.

The value of hospital standardization to the medical profession. F. M. ROUTH. J. South Carolina M. Ass., 1923, xix, 460.

Medical education past and present. J. A. WITHERSPOON. J. Am. M. Ass., 1923, lxxx, 1191.

The use of the dispensary in the teaching of clinical medicine. L. HAMMAN. South. M. J., 1923, xvi, 309.

The use of the dispensary in the teaching of clinical medicine. I. COHN. South. M. J., 1923, xvi, 312.

The teaching of physical diagnosis and its position in the curriculum. I. I. LEMANN. South. M. J., 1923, xvi, 305.

The teaching of a surgical specialty. M. F. ARBUCKLE. South. M. J., 1923, xvi, 317.

The revision of the medical curriculum. A. D. BEVAN. J. Am. M. Ass., 1923, lxxx, 1187.

The training of the laboratory technician. W. E. KING. Minnesota Med., 1923, vi, 233.

Hygiene in the Middle Ages. P. BERTIN-ROULLEAU. J. de méd. de Bordeaux, 1923, xcv, 240.

The dawn of surgery: notes from Homer. J. WRIGHT. N. York M. J. & Med. Rec., 1923, cxvii, 483.

Contribution to the history of the fraternity of Master Barbers and Surgeons of Bordeaux in the fifteenth and sixteenth centuries. P. BERTIN-ROULLEAU. J. de méd. de Bordeaux, 1923, xcv, 283.

Studies of ancient surgery. MELCHIOR. Beitr. z. klin. Chir., 1922, cxxvii, 721.

Greek medical etiquette. W. H. S. JONES. Proc. Roy. Soc. Med., Lond., 1923, xvi, Sect. Hist. Med., 11.

Critical and desultory remarks in the light of the history of ancient medicine. J. WRIGHT. *Am. Med.*, 1923, xxix, 209.

Edward Jenner. W. HALE-WHITE. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, 1.

Eulogy of Jenner. D. N. MARISCAL. *Siglo méd.*, 1923, 329, 353.

Eulogy of Jenner. J. F. TELLO. *Siglo méd.*, 1923, lxx, 405.

Eulogy of Jenner. G. PITTALUGA. *Siglo méd.*, 1923, lxx, 381.

Eulogy of Pasteur. P. MAUCLAIRE. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 560.

Pasteur as artist. G. MONOD. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, 21.

Pasteur as chemist. T. M. LOWRY. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, 16.

Pasteur in relation to medicine. W. HALE-WHITE. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, 11.

Medical Jurisprudence

The physician's right to sue employer for services performed at his request for employe not affected by the Compensation Law. *Weinreb vs. Harlem Bakery & Lunch Room*, 197 N. Y. Supp., p. 833. [179]

Surgeon who agrees to perform operation does not guarantee results. *Wilson vs. Blair*, 211 Pac. Rep., p. 289. [179]

Responsibility of the physician in the case of an X-ray burn. *Stemons vs. Turner*, 117 Atlantic Rep., p. 922. [180]

Responsibility of the surgeon in the case of a burn from a hot water bag. *Harber vs. Gledhill*, 208 Pac. Rep., p. 1111. [180]

Care required of a hospital in the treatment of the eye. *Derrick vs. Portland Eye, Ear, Nose, and Throat Hospital*, 209 Pac. Rep., p. 344.

Malpractice in reducing fractures. *Berkholz vs. Benepe*, 190 N. W. Rep., p. 800.

INTERNATIONAL ABSTRACT OF SURGERY

SEPTEMBER, 1923

COLLECTIVE REVIEW

PERI-ARTERIAL SYMPATHECTOMY

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PERI-arterial sympathectomy is a term applied by René Leriche (37), of Lyons, France, to the surgical removal of the sympathetic fibers situated in the wall of an artery. He has suggested the performance of this operation in vasomotor and trophic disturbances of the region supplied by the artery.

The operation was first given prominence by Leriche (37) in 1913, but he gives the credit for his research to his teacher, Jaboulay, who, in 1889, performed the operation on the femoral artery with curative results in cases of perforating ulcer of the foot.

ANATOMICAL AND PHYSIOLOGICAL BASIS OF THE THEORY OF THE OPERATION

A relationship between the sympathetic nervous system and the blood vessels has been recognized since 1851 when Claude Bernard (8) made the discovery that when the sympathetic nerve is cut in the neck of a rabbit, the blood vessels in the ear of the same side become very much dilated. Later, Bernard and other observers demonstrated that if the peripheral end of the severed nerve is stimulated electrically, the ear becomes blanched, owing to a constriction of the blood vessels. Since this time our knowledge of the anatomy and physiology of these fibers has been greatly increased.

The sympathetic autonomic system is one of the four great divisions of the autonomic system, and its fibers supply the extremities. The cord cells of the sympathetic section of the autonomic system lie in that portion of the spinal

cord from the first thoracic to the second or third lumbar segments, inclusive.

The vasoconstrictor nerve fibers belong to the sympathetic autonomic system, consisting therefore of a preganglionic fiber arising in the cerebral nervous system and a post-ganglionic fiber arising from the cell of some sympathetic ganglion. The sympathetic fibers which run to the extremities arise from the paravertebral or lateral sympathetic chain of ganglia, while the fibers to the viscera emanate from the prevertebral or collateral sympathetic system of ganglia.

The post-ganglionic fibers return to the spinal nerves and are incorporated in them. The terminations of these post-ganglionic fibers are in the media of the vessel walls, but there has been some dispute as to their path in arriving at this destination. It has been commonly believed that some of the sympathetic fibers make their way to the periphery along the sheaths of the arteries, though definite proof of this is lacking, save in the case of the fibers which are sent by the sympathetic system directly to the aorta and appear to spread some distance down the larger arteries. In 1913 Todd stated that the sympathetic nerves to the vessels do not pass along the main vessel sheaths. He contended that the vessels of the limbs are supplied directly from the various nerve trunks and that vascular nerves do not pass distally as a peri-arterial plexus which provides branches for the coats of the vessels. In 1914, Kramer and Todd (33) studied this subject in the vessels of the arm. A partial summary of their work is as follows:

1. The subclavian and axillary arteries differ from other arteries of the arm in receiving a nerve supply direct from the sympathetic chain.

2. All other arteries in the upper limb obtain their nerve supply from sympathetic filaments which have traveled along the spinal nerves and are distributed to the various blood vessels at irregular intervals.

3. The distal and peripheral vessels, more particularly those of the hand, receive nerve filaments at more frequent intervals than do the proximal channels.

4. The distribution of nerves to vessels corresponds roughly with the distribution of nerves to muscles and skin.

5. The fact that the subclavian trunk derives its nerve supply directly from the sympathetic chain accounts for its escape from involvement in the lesion associated with the condition known as cervical rib.

In 1914, Potts (77) published a study of the distribution of nerves of the arteries of the leg. He stated that local damage to a large artery will injure the vascular plexus at the point of damage only, and will not account for changes produced in the vessel at a distance from the injured site. He maintained also that if absolute proof can be obtained of the relation between damage to the sympathetic supply of an artery and morphological changes in the vessel itself of more than focal character, the nerve damage must occur at some distance from the arterial tree and not simply to the sympathetic plexus as it lies on the vessel.

Leriche presents evidence which is difficult to reconcile with these observations. After decorticating the vessel for a distance of 8 to 10 centimeters, and thus injuring the sympathetic fibers at this site, he finds not only a marked local constriction of the vessel but also an elevation of surface temperature of from 2 to 3 degrees over those parts distal to the sympathectomy which persists for about fifteen days, and an elevation of the systolic pressure which may be as great as 4 centimeters of mercury.

The reaction of vasodilation with hyperthermia was noted in a case reported by Halsted (27). Here, after excision of a left subclavian aneurism, the hand and forearm became appreciably warmer than that on the sound side, this persisting for several weeks. Callander (16) cites a case observed by Babinski and Heitz in which quadruple ligation and excision of the sac was performed for the cure of an arteriovenous aneurism of the axillary artery. In this case the forearm and hand of the side operated upon were much

warmer four months after the operation than those of the sound side. These two cases may possibly be correlated with the observation of Kramer and Todd (33) that the subclavian and axillary vessels differ from other arteries of the arm in receiving a nerve supply direct from the sympathetic chain.

Callander (16), in his splendid contribution to the subject, from which quotations are freely taken, was able to verify the reaction of visible arterial contraction at the site of the sympathectomy, but noted the reaction of vasodilation in but one case and the reaction of increased peripheral blood pressure in none.

Callander says that Leriche designates three varieties of trauma which result in disturbance of the vasomotor balance of the extremities and are the cause of certain definite clinical pictures. The first is an injury to the spinal nerve fibers in the tissue of the extremities, not necessarily in the immediate vicinity of the vessels or nerves. Traumatic excitation of these sensory fibers conveys impulses which travel to the ganglionic and medullary centers, causing a reflex vasoconstriction of perhaps the whole extremity. In the second, vasoconstriction is said to arise, not by reflex action, but by direct injury to the efferent sympathetic fibers which Leriche believes lace the arteries with a peri-arterial network. When these are traumatically irritated but not destroyed, they overact and convey stronger impulses to the periphery than normal, this causing a vasoconstriction and hypothermia. The third variety is destructive. The destruction of the vasoconstrictive element, which Leriche thinks predominates, results in a paralytic vasodilation and hyperthermia.

Thus it may be seen readily from the imagined variety of lesions and the amount of possible injury to the artery and nerve, that there may result all gradations from hyperthermia to hypothermia. In every case it may be noted that there is a tendency for the normal thermal equilibrium to be established.

Lehman (36) has made careful attempts to verify Leriche's observations on dogs and concludes as follows:

1. The "perivascular sympathectomy" of Leriche does not result experimentally in the dog in the physiological changes in the extremities described by him in clinical cases.

2. Vasodilation resulting from proved total sympathectomy does not affect wound healing.

After experimenting with the rabbit, cat, and dog, Leriche (50) concludes that peri-arterial sympathectomy is to be studied only in man.

TECHNIQUE

A good description of Leriche's technique for the performance of peri-arterial sympathectomy may be found in a translation from the French by Halsted (27):

"In order to achieve a peri-arterial sympathectomy it is necessary to uncover the artery by the classic procedure, open the cellular sheath with the bistoury, separate the artery for 8 to 10 cm., get hold of the inner sheath directly on the vessel wall, incise it, pull one of the lips thus made with a forceps, free it either with a bistoury or with the grooved probe, completely stripping the artery, to decorticate a fold of all the cellular tissue that adheres to it. More or less easily, according to the cases, one is able thus to strip the artery, to decorticate a fold; thin to be sure, but often thicker than one might expect. At a certain moment one has the impression that one is going to tear the wall of the artery; but if one proceeds gently and carefully, guided by the point of the bistoury or probe, the freeing process can be carried on without risk of injuring the vessel.

Only twice have I had the annoyance of making a small tear in the artery; the accident was without serious results. In case of necessity one would frankly resect the segment of the tear and tie the two ends, accomplishing thus by the same act a complete sympathectomy. Sometimes the forceps removes only rather short cellular fragments, at other times one removes quite definite laminæ, and the movement of freeing recalls, on a small scale, the subserous decortication of an inflamed appendix, but one never succeeds in removing a continuous layer; it is necessary to repeat the attempt several times and with perseverance to catch the sheath again, to remove thin meshes, and not to stop until one has really the feeling of having removed everything. Moreover, one can verify what has been done by wetting the wound with a tampon soaked with very warm serum; the artery takes on then a whitish appearance, looks as though made of felt, and one sees very clearly whether there remains still some cellular débris more or less detached.

"In the course of the cellular decortication it is necessary to be careful to expose the collateral branches and guard against tearing them. This happens sometimes; by using then a forceps and a ligature of 00 catgut one repairs this accident without injury to the artery. In addition to the tears, which cause a spurt of pure blood, there may be oozing from the tearing of the vasa vasorum."

CLINICAL RESULTS

In a paper read before the American Surgical Association, Leriche (46) stated that he had performed peri-arterial sympathectomy sixty-four times: in eleven cases of causalgia or equivalent syndromes, two cases of painful stumps, nineteen cases of post-traumatic contractures, four cases of extensive traumatic œdema, one case of trophic œdema, four cases of ischæmic sequelæ, one case of trophic sloughs on a stump, ten cases of trophic sloughs after nerve sections, one case of a sore of the heel after medullary injury, one case of varicose eczema, one case of spasmodic paralysis, three cases in which an attempt was made to modify tension of the cerebrospinal fluid, two cases of jacksonian epilepsy, one case of goiter, one case of intermittent claudication, and one case of erythromelalgia. His study of cases led him to believe that peri-arterial sympathectomy is often very efficacious in painful phenomena, will influence hypertonic symptoms of muscular phenomena, and is very efficacious in trophic troubles which lead to ulcers. More recently (50) he stated that it has a place in the therapy of certain primary localized sclerodermas, resistant palmar keratoses, certain alopecias, etc., and may be of use in dysfunction of the glands of internal secretion.

The operation has been done by a large number of surgeons for various conditions but the results have not been uniformly successful and have not agreed entirely with those reported by Leriche. Matons (71) reported accidental perforation of the media during resection of the adventitia.

Forestier (22) found the operation useful on the internal carotid in corneal ulcers due to injuries of the head, on the brachial artery in Raynaud's disease, on the hypogastric in kraurosis of the vulva, and on the femoral artery in varicose ulcers. It is of value not only in angiospasm, but also for symptoms due to over-activity of the vasodilators.

Bruening and Forster (13) have reported a successful peri-arterial sympathectomy in the case of a woman of 45 years who had a severe vasomotor trophic neurosis incident to inflammation of the sheaths of the extensor tendons of the right thumb.

With regard to causalgia, the testimony of Carter (17) who examined over 1,000 cases of injuries to the peripheral nerves is of great value. The first case of causalgia was reported in 1813 by Denmark, but it was not until 1864 that Weir Mitchell (75) gave the first complete and classical description.

Causalgia (thermalgia) is an intensely painful condition almost entirely limited to certain sensory areas of the distribution of the median and sciatic nerves caused by lesions of these nerves at points more or less distant from the areas mentioned, and characterized by local vasomotor disturbances and general hypersensitiveness of the nervous system—a painful vasomotor neurosis due to irritation of a mixed nerve.

Peri-arterial sympathectomy is not of value in causalgia. The fundamental lesion in this and allied conditions is an intraneural and perineural sclerosis. The irritation thus set up in fibers at the site of injury to the nerves causes perverted afferent impulses to be sent back to the cord, and possibly to the subcortical and cortical centers. From here, efferent responses of vasodilator, secretory, and trophic natures are reflected to the peripheral distribution of the nerve, where reaction on the end-organs and sensory corpuscles in this area is interpreted as pain.

The operative treatment of causalgia is neurolysis, though the intraneural injection of 60 per cent alcohol as suggested by Bicard and carried out by Lewis and Gatewood (7) has given very satisfactory results where neurolysis alone may not have given relief.

In the case reported by Halstead and Christopher (26) the improvement was very striking. In this instance a diagnosis of endarteritis obliterans had been made and the excruciating pain prevented sleep or walking more than half a block at a time. Varied medical treatment was tried in vain. Ten months after peri-arterial sympathectomy the patient was free from pain and on his feet almost continuously for twelve hours daily in his work as a restaurant cashier. Before the operation the leg was cold, but it now becomes warm when the patient is in bed.

Callander reports ten "arterial decortications," as he prefers to term them, on six patients. He classified his cases into groups. In the first group, in which the arterial changes at the time of operation were thought to be spasmodic rather than obliterative, there was no improvement after the operation.

In the second group in which an obliterative arteritis seemed to play the predominant rôle, there was one cure and two cases without improvement.

In the third group, cases of unaccounted-for pain, there was unaccounted-for pain in the thumb. Following the operation the pain disappeared, but another pain developed in the flexor group of muscles. The latter also ceased, however, and there has been no recurrence.

Straus (36, 90) reported favorably on two cases before the Chicago Surgical Society in 1922.

CONCLUSIONS

From the foregoing examination of the subject it may be seen that:

1. Peri-arterial sympathectomy has been of great help in certain conditions which otherwise were perhaps hopeless.
2. Various observers have been unable to verify certain of Leriche's clinical observations.
3. More recent discoveries of the anatomy and physiology of the sympathetic system make it very difficult to explain the clinical phenomena which Leriche has reported.
4. The subject is a very inviting field for further study and research.

BIBLIOGRAPHY

1. ABADIE, C. Sympathectomie péricarotidienne. *Presse méd.*, Par., 1920, xxviii, 606.
2. AIEVOLI, E. Peri-arterial sympathectomie. *Riforma med.*, 1921, xxxvii, 393.
3. BABINSKI, J., FROMENT, J., and HEITZ, J. Des troubles vasomoteurs et thermiques dans les paralysies et les contractures d'ordre réflexe. *Ann. de méd.*, Par., 1916, iv, 461.
4. BABINSKI, J. and HEITZ, J. Hyperthermia locale du membre supérieur droit après résection d'un anévrisme axillaire chez un blessé présentant une paralysie complète du plexus brachial du même côté. *Bull. et mém. Soc. méd. d. hôp. de Paris*, 1916, 3s., xi, 2324.
5. BENEDICT, F. G., and others. Human Vitality and Efficiency under Prolonged Restricted Diet. *Carnegie Inst. Washington*, Pub. No. 280, p. 78.
6. BÉNISTY, A. Troubles trophiques très marqués localisés au niveau d'un doigt à la suite d'une lésion vasculaire par plaie de la paume de la main. *Rev. neurol.*, 1914-15, xxviii, 1229.
7. Idem. *Formes Cliniques des Lésions des Nerfs*. Paris: 1916, pp. 56, 214.
8. BERNARD, C. *Leçons sur la Physiologie et la Pathologie du Système Nerveux*. 1868, Vol. 2, p. 508.
9. Idem. *Leçons sur la Chaleur Animale*. 1876, p. 244.
10. BONNET, G. Les adaptations fonctionnelles au niveau des artères traumatisées. *Thèse de Lyon*, March, 1920.
11. BOURGUET. Recherches sur l'irrigation des nerfs. *Compt. rend. Soc. de biol.*, Par., 1915, April 5.
12. BOURSIER, P. Contribution à l'étude du traitement chirurgical de la causalgie. *Thèse Fac. Méd. de Bordeaux*, 1917.
13. BRUENING, F., and FORSTER, E. Die peti-arterielle Sympathektomie in der Behandlung der vasomotorisch-trophischen Neurosen. *Zentralbl. f. Chir.*, 1922, xlix, 913. *Abst. J. Am. M. Ass.*, 1922, lxxix, 1807.
14. BRUENING, F., and STAHL, O. Ueber die physiologische Wirkung der Exstirpation des peri-arteriellen sympathischen Nervengeflechtes. *Klin. Wchnschr.*, 1922, i, 1402.
15. CALLANDER, C. L. A surgical study of arterial decortication. *California State J. M.*, 1922, xx, 346.

16. Idem. Arterial decortication. *Ann. Surg.*, 1923, lxxvii, 15.
17. CARTER, H. S. On causalgia and allied painful conditions due to lesions of peripheral nerves. *Psychopathol.*, 1922, iii, 1.
18. DASTRE, A. F., and MORAT, J. P. Recherches expérimentales sur le système nerveux vasomoteur. Paris: Masson, 1884.
19. DUCASTAIGN, M. R. Note sur quatre cas de stупeur artérielle traumatique. *Bull. et mém. Soc. de chir. de Par.*, 1919, xiv, 606.
20. DUCOSTE, M. Les syndromes cubitiaux. Communication à la Soc. de méd. et chir. de Bordeaux, July 2 and 10, 1915. *Gaz. hebdom. d. sc. méd. de Bordeaux*, 1915, xxxvi, 26, 81.
21. DUPIN. Recherches d'histophysiologie pathologique sur les plaies des gros vaisseaux et leurs ulcérations secondaires. Thèse de Lyon, 1920.
22. FORESTIER, J. Progrès méd., 1922, xxxvii, 558.
23. GASKELL, W. H. The Involuntary Nervous System. 1916.
24. GIBOU, E. Causalgies et syndromes douloureux d'origine sympathique. *Presse méd.*, Par., 1918, xxvi, 584.
25. HALPER, A. Ueber Mikrocapillarbeobachtungen bei einem Fall von Raynaudscher Krankheit. *Ztschr. f. d. ges. exper. Med.*, 1920, ii, 125.
26. HALSTEAD, A. E., and CHRISTOPHER, F. Peri-arterial sympathectomy. *J. Am. M. Ass.*, 1923, lxxx, 173.
27. HALSTED, W. S. A striking elevation of the temperature of the hand and forearm following the excision of a subclavian aneurism and ligations of the left subclavian and axillary arteries. *Bull. Johns Hopkins Hosp.*, Balt., 1920, xxxi, 219.
28. HEAD, H., and RIVERS, W. H. R. A human experiment in nerve division. *Brain*, xxxi, 404.
29. HEITZ, J. Des troubles circulatoires qui accompagnent les paralysies ou les contractures post-traumatiques d'ordre réflexe. *Arch. d. mal. du coeur*, 1917, x, 161.
30. HERBET, H. Le sympathique cervical. Étude anatomique et chirurgicale. Thèse de Paris, 1900, p. 171. G. Carré and C. Naud, 1900, No. 245.
31. HOWELL, W. H. The Sympathetic Nervous System. *Textbook of Physiology*, p. 248.
32. KARAJANOPOULO. Sur un cas de causalgie. *Bull. et mém. Soc. de chir. de Par.*, 1920, Feb. 20.
33. KRAMER, J. G., and TODD, T. W. The distribution of nerves to the arteries of the arm. *Anat. Rec.*, 1914, viii, 243.
34. KROGH, A. Physiology of the capillaries. *J. Physiol.*, 1919, iii, 456.
35. LANGLEY, J. N. The Sympathetic Nervous System. Schaefer's Textbook of Physiology, 1900, vol. ii, 616.
36. LEHMAN, P. Peri-arterial sympathectomy. *Ann. Surg.*, 1923, lxxvii, 30.
37. LERICHE, R. De l'élongation et de la section des nerfs péri-vasculaires dans certains syndromes douloureux d'origine artérielle et dans quelques troubles trophiques. *Lyon chir.*, 1913, x, 378.
38. Idem. De la causalgie envisagée comme une névrite sympathique et son traitement par la dénudation et l'excision des plexus nerveux péri-artérielles. *Presse méd.*, Par., 1916, xxiv, 178. *Rev. neurol.*, 1916, p. 184.
39. Idem. Du syndrome sympathique consécutif à certaines oblitérations artérielles traumatiques et de son traitement par la sympathectomie péri-phérique. *Bull. et mém. Soc. de chir. de Par.*, 1917, xliii, 310.
40. Idem. De la sympathectomie péri-artérielle et de ses résultats. *Presse méd.*, 1917, xxv, 513.
41. Idem. Notes sur la causalgie et sur son traitement. *Lyon chir.*, 1919, xvi, 531.
42. Idem. De la part du sympathique périverneux dans la production de l'eczéma varique. *Lyon chir.*, 1919, xvi, 651.
43. Idem. De quelques effets de la sympathectomie péri-thyroïdienne supérieure. *Lyon chir.*, 1920, xvii, 109.
44. Idem. Des effets de la sympathectomie péricarotidienne interne chez l'homme. *Presse méd.*, 1920, xxviii, 301.
45. Idem. Traitement de certaines ulcérations spontanées des moignons par la sympathectomie péri-artérielle. *Presse méd.*, Par., 1920, xxviii, 765.
46. Idem. *Trans. Am. Surg. Ass.*, 1921, xxxix, 471.
47. Idem. Méningite séreuse corticale enkystée post-traumatique; épilepsie Jacksonienne; trépanation après sympathectomie péricarotidienne dans un but d'hémostase. *Lyon chir.*, 1920, xvii, 392.
48. Idem. Nature des ulcérations trophiques. *Lyon chir.*, 1921, xxviii.
49. Idem. Some researches on the peri-arterial sympathetics. *Ann. Surg.*, 1921, lxxiv, 385.
50. Idem. Sur l'étude expérimentale, la technique et quelques indications nouvelles de la sympathectomie péri-artérielles. *Presse méd.*, Par., No. 86, 1921, Oct.
51. Idem. La resection du sympathique a-t-elle une influence sur la sensibilité périphérique? *Revue de chir.*, 1922, i, 22.
52. Idem. Résultats éloignés des ligatures et des resections artérielles. *Congrès français de chirurgie*, Rapport, 1922.
53. LERICHE, R., and CONVERT, P. Sur la mécanisme sympathique de l'hémostase spontanée dans certaines plaies sèches des artères. *Presse méd.*, Par., 1917, xxv, 603.
54. LERICHE, R., and HAOUR, J. Du mode d'action de la sympathectomie périartérielle sur la réparation des tissus et la cicatrisation des plaies. *Presse méd.*, Par., 1921, xxix, 856.
55. LERICHE, R., and HEITZ, J. Résultats de la sympathectomie périartérielle dans le traitement des troubles nerveux post-traumatiques d'ordre réflexe (type Babinski-Froment). *Lyon chir.*, 1917, iv, 754.
56. Idem. Des effets physiologiques de la sympathectomie périartérielle (réaction thermique et hypertension locales). *Compt. rend. Soc. de biol.*, Par., 1917, lxxx, 66.
57. Idem. De l'action de la sympathectomie périartérielle sur la circulation périphérique. *Arch. d. mal. du coeur*, 1917, x, 79.
58. Idem. De la réaction vaso-dilatatrice consécutive à la résection d'un segment artérielle oblitéré. *Compt. rend. Soc. de biol.*, Par., 1917, lxxx, 160.
59. Idem. Influence de la sympathectomie périartérielle ou de la résection d'un segment artérielle oblitéré sur la contraction volontaire des muscles. *Compt. rend. Soc. de biol.*, Par., 1917, lxxx, 189.
60. Idem. De la réaction vasodilatatrice. *Compt. rend. Soc. de biol.*, Par., 1917, lxxx, 160.
61. LERICHE, R., and POLICARD, A. Sur quelques facteurs physiologiques élémentaires intervenant dans l'évolution des lésions traumatiques des vaisseaux. *Lyon chir.*, 1920, xvii, 242.

62. Idem. Étude de la circulation capillaire chez l'homme: l'excitation des nerfs sympathiques péri-artérielles et la ligature des artères. *Lyon chir.*, 1920, xvii, 703.
63. Idem. Adaptation fonctionnelle des artères liées à l'entendue nouvelle de leur territoire de distribution et conséquences thérapeutiques de cette notion. *Bull. et mém. Soc. de chir. de Par.*, 1920, xlv, 142.
64. Idem. Quelques déductions thérapeutiques basées sur la physiologie pathologique de l'artère humérale. *Lyon chir.*, 1920, xvii, 250.
65. Idem. Sur quelques faits de physiologie pathologique touchant les blessures du sympathique péri-artérielle, la contusion artérielle et l'oblitération spontanée des artères déchirées par un projectile. *Bull. et mém. Soc. de chir. de Par.*, 1919, xv, 718.
66. LÉTIÉVANT, J. J. E. *Traité des Sections Nerveuses; Physiologie Pathologique, Indications, Procédés Opératoires.* Paris: Baillière, 1873.
67. LEWIS, D., and GATEWOOD, W. The treatment of causalgia. *J. Am. M. Ass.*, 1920, lxxiv, 1.
68. LORTAT, J., and HALLEZ, G. L. Traitement de la "causalgie" du médian avec troubles paralytiques graves par la ligature du nerf au catgut. *Bull. et mém. d. hôp. de Par.*, 1918, 38, xliii, 239.
69. MARIE, P., and BÉNISTY, A. L'individualité clinique des nerfs. *Rev. neurol.*, 1914-15, xxxviii, 280.
70. Idem. Une forme douloureuse des blessures du nerf médian par plaies de guerre. *Presse méd., Par.*, 1915, xxiii, 81. *Bull. de l'Acad. de méd.*, 1915, No. 7.
71. MATONS, E. *Semana méd.*, 1922, ii, 98. *Abst. J. Am. M. Ass.*, 1922, lxxix, 1645.
72. MEIGE, H., and BÉNISTY, A. De l'importance des lésions vasculaires associées aux lésions des nerfs périphériques dans les plaies de guerre. *Bull. et mém. Soc. méd. d. hôp. de Par.*, 1915, 38, xxix, 208.
73. Idem. Sur les formes douloureuses des nerfs périphériques. *Rev. neurol.*, 1914-15, xxxviii, 725.
74. Idem. Les signes cliniques des lésions de l'appareil vasculaire dans les blessures des membres. *Presse méd., Par.*, 1916, xxiv, 153.
75. MITCHELL, S. W., MOREHOUSE, G., and KEEN, W. *Gunshot Wounds and Other Injuries of Nerves.* Philadelphia: Lippincott, 1864.
76. POLICARD, A. Un procédé simple d'étude direct de la circulation capillaire chez l'homme; la micro-angioscope. *Compt. rend. Soc. méd. d. hôp. de Lyon*, 1919.
77. POTTS, L. W. The distribution of nerves to the arteries of the leg. *Anat. Anzeiger*, 1914, xlvii, 138.
78. ROCHER and FERRAND. Sympathectomie péri-humérale; quatre observations ayant donné d'excellents résultats. *Paris méd.*, 1918, viii.
79. SICARD, J. A. Traitement de la névrite du médian par l'alcoolisation tronculaire. *Bull. et mém. Soc. méd. d. hôp. de Par.*, 1915, July 9. *Bull. et mém. Soc. méd. d. hôp. de Par.*, 1914, 38, xxxix, 586.
80. Idem. Blessures de guerre; traitement de certaines algies et acro-contractures rebelles par l'alcoolisation nerveuse locale. *Bull. et mém. Soc. méd. d. hôp. de Par.*, 1916, 38, xi, 20.
81. Idem. Traitement des névrites douloureuses de guerre (causalgies) par l'alcoolisation nerveuse locale. *Presse méd., Par.*, 1916, xxiv, 241.
82. SICARD, J. A., IMBERT, L., and JOURDAN. Contribution à l'étude medico-chirurgicale des blessures des nerfs. *Presse méd., Par.*, 1915, xxiii, 59.
83. SIMEONI, V. Sulla simpaticectomia periarteriosa attiva. *Med. ital. Pisa*, 1922, v, 10.
84. SOLIER, P. A., ROSE, F., VILLANDRE, and CHARTIER. *Traité Clinique de Neurologie de Guerre.* Paris: Alcan, 1918.
85. SOUBEYRAN. A propos de la stupeur artérielle. *Bull. et mém. Soc. de chir. de Par.*, 1919, xlv, 910.
86. SOUBEYRAN and MICHON. Note sur un cas de contusion artérielle, stupeur artérielle, syndrome causalgique consécutif. *Bull. et mém. Soc. de chir. de Par.*, 1918, xlv, 805.
87. SOUQUES, A. Synesthésalgies dans certaines névrites douloureuses; son traitement par le gant de caoutchouc. *Rev. neurol.*, 1914-15, xxii, 562.
88. STOPFORD, J. S. B. Thralgia (causalgia). *Lancet*, 1917, ii, 195.
89. Idem. Trophic disturbances in gunshot injuries of peripheral nerves. *Lancet*, 1918, i, 465.
90. STRAUS, D. C. Peri-arterial sympathectomy in thrombo-angiitis obliterans. *Tr. Chicago Surg. Soc.*, Nov. 3, 1922. *Surg., Gynec. & Obst.*, 1923, xxxvi, 291.
91. TENANI, O. Success of perivascular sympathectomy for causalgia. *Policlin.*, Rome, 1918, xxv, 749.
92. THOMAS, A. Le réflexe pilo-moteur dans deux cas familiaux de meralgie paresthésique. *Paris méd.*, 1920, x, 422.
93. THOMAS, A., and VALENSI, L. Le spasme artérielle dans la claudication intermittente du membre inférieur. *Paris méd.*, 1918, Jan. 19.
94. TINEL, J. Les Blessures des Nerfs: *Sémiologie des Lésions Nerveuses Périphériques par Blessures de Guerre.* Paris: Masson, 1916.
95. TODD, T. W. Blood-vessel changes consequent on nervous lesions. *Nervous & Mental Dis.*, 1913, xi, 439.
96. Idem. Indications of nerve lesions in certain pathological conditions of blood vessels. *Lancet*, 1913, i, 1371.
97. TUFFIER. Paralyse d'origine ischémique traitée par la sympathectomie péri-artérielle. *Paris méd.*, 1919, xxxi, 63.
98. Idem. Contusion de l'épaule, paralysie totale de l'avant bras et de la main; sympathectomie périsculaire. *Bull. et mém. Soc. de chir. de Par.*, 1918, xlv, 1741.
99. VEYRASSAT, J. A., and SCHLESINGER, A. Du traitement du mal perforant. *Rev. méd. de la Suisse Rom.*, 1917, xxxvii, 63.
100. VIANNAY, C. La stupeur artérielle. *Bull. et mém. Soc. de chir. de Par.*, 1918, xlv, 1321.
101. VILLARD, A. G. P. De la sympathectomie péri-artérielle comme traitement des douleurs causalgiques, après les observations du centre neurologique militaire de la 8 région. *Fac. de méd. et de pharm. de Lyon, année scolaire, 1920-21, No. 42*, p. 13.
102. WALTHER, C. Note sur l'intervention chirurgicale dans les blessures des nerfs des membres par projectiles de guerre. *Communication à l'Acad. de méd.*, Paris, 1914, 38, lxxii, 255.
103. Idem. Sur l'intervention chirurgicale dans les lésions des troncs nerveux des membres par projectiles de guerre. *Gaz. méd. de Par.*, 1914, lxxxv, 243.
104. WEISS. Beobachtungen und mikrophotographische Darstellungen der Hautcapillaren am lebenden Menschen. *Deutsche Arch. f. klin. Med.*, 1916, cxix, 1.

ABSTRACTS OF CURRENT LITERATURE

SURGERY OF THE HEAD AND NECK

HEAD

Eiselsberg, A., and Pichler, H.: The Plastic Repair of Skin Defects of the Jaw and Chin (Ueber den Ersatz von Kiefer- und Kinnhautdefekten). *Arch. f. klin. Chir.*, 1922, cxxii, 337.

In the treatment of defects of the jaw caused by trauma or the operative removal of a neoplasm, it is important to provide immediate relief by means of a provisional splint. Later, a plastic operation can be done which will render the prosthesis unnecessary.

The defect may be repaired by a plastic procedure using tissue from the surrounding parts or by the free transplantation of bone obtained from a distant part of the body. In the first method (that of Krause and Bardenheuer) a fragment of bone left attached to its old bed by a pedicle of muscle is employed. In the removal of the fragment it is important to avoid injury to the buccal mucous membrane. After sufficient mobilization, the fragment is laid in its new bed where it is held in place by dovetailing and, if necessary, by one or two wire sutures. For from two to four weeks, the lower teeth are fastened to the upper by ligatures, nourishment being given through a gap where the teeth are missing.

This flap procedure was used sixty-six times on sixty-two patients (four times bilaterally). The result was definitely successful in fifty-two cases and apparently successful in four. In one case it was successful on one side only, and in five it was a failure. In the authors' opinion, two of the failures must be attributed to a chronic nephritis which was present before the operation.

Free bone transplantation was employed in twenty-nine cases. The transplant was taken from the crest of the ilium and from the tibia in fourteen cases each, and from the rib in one case. After both stumps of the jaw have been exposed and freshened, a pattern is cut from a thick sheet of lead which will reproduce the curve of the maxillary arch and extend as far as necessary on both fragments. A pledget dipped in Pregl's solution is then laid in the wound and the transplant is chiseled from the iliac fossa according to the lead pattern. The piece of bone is then immediately fixed in the defect with periosteal sutures and the soft parts are drawn over it as well as possible. Wire sutures should not be used. During the operation and the after-treatment the prosthesis is left in the mouth to keep the maxillary stumps and the transplant in position.

Of the patients operated on by this method, fourteen were completely cured, three were benefited,

nine remained uncured, and four died. As three of the deaths were probably due to the effects of the anæsthetic, the operation should be performed under local or conduction anæsthesia if possible.

In cases in which bone transplantation cannot be carried out, a permanent splint should be worn. The authors give full directions for making such a splint.

For the repair of extensive cutaneous defects of the chin the authors used a two-pedicled flap formed from the scalp, each pedicle of which contained a temporal artery. The hairless skin of the forehead was turned inward. The defect on the head was covered by Thiersch grafts. The method and the results of the operation are shown in cuts.

Of special importance in the treatment of these injuries is the co-operation of a dentist with surgical training and a surgeon with dental training.

HARMS (Z).

EYE

Luedde, W. H.: The Significance of the Tuberculin Reaction and Other Problems in Ocular Tuberculosis. *Am. J. Ophth.*, 1923, vi, 161.

Luedde uses much smaller amounts of tuberculin than were employed formerly; his diagnostic doses begin as low as 0.0002 mgm. of old tuberculin. He states that by close observation a focal ocular reaction may be detected. Rarely does he use more than 0.005 mgm. of old tuberculin for diagnosis, and seldom more than that amount of any tuberculin in treatment.

To illustrate some of the problems he mentions a number of cases he has treated. In the case of a boy there seemed to be an associated hereditary lues which was unsuspected until a nodular keratitis became worse under treatment with tuberculin. Antiluetic treatment was quickly followed by improvement.

Ocular tuberculosis seems to be relatively uncommon in persons with pulmonary tuberculosis, and pulmonary tuberculosis relatively uncommon in those with ocular tuberculosis. In the majority of persons showing a focal ocular reaction there is a focal reaction in the nasal mucosa. To explain this fact Luedde cites several cases in which it seemed that the patient with ocular tuberculosis had been recently exposed to persons with pulmonary tuberculosis. Luedde assumes that the fine tuberculous spray coughed up was implanted in the nasal mucosa and the conjunctiva. The person with pulmonary tuberculosis does not infect his own nasal mucosa because when he coughs he does not force the

secretion into the nose as the soft palate is raised and the spray is sent through the mouth.

Several cases of typical ocular tuberculosis have been associated with infections in the posterior nasal chambers and tonsils. Drainage of the sinuses and tonsillectomy were followed by marked improvement or healing of the ocular condition without the use of tuberculin.

Three explanations are given:

1. The nasopharyngeal disease may be the active focus of tuberculous infection which causes the ocular disease by diffusion of toxins.

2. The nasopharyngeal disease may not be tuberculous, yet may act by lowering the resistance of the ocular tissues to the infection.

3. We may deny that the focal reactions to test injections of tuberculin have any diagnostic significance.

Luedde sent out a questionnaire to a number of prominent pathologists and ophthalmologists interested in pathology to determine whether the focal reaction of tuberculin was generally regarded today as having specific diagnostic importance. There was some difference of opinion. Luedde draws the following conclusions:

1. A focal ocular reaction caused by a test injection of tuberculin renders the diagnosis of ocular tuberculosis highly probable, but does not make it absolutely positive.

2. The therapeutic benefits obtained from the use of tuberculin in ocular tuberculosis must be recognized but can be explained rationally either as a specific or a non-specific effect.

3. Clinical experience demonstrates that the radical elimination of focal infections, especially those of the nasopharynx, and the proper treatment of any coexisting constitutional disease will render less frequent the indications for the use of tuberculin either as a diagnostic or a therapeutic agent in ophthalmic practice.

THOMAS D. ALLEN, M.D.

Hill, E.: The Causes of Bitemporal Contraction of the Visual Field. *Am. J. Ophth.*, 1923, vi, 257.

The forty cases presented in this article call attention to the different forms of visual field impairment as they may occur in hypopituitarism with or without convulsions, with pituitary headache, pituitary disturbance in relation to infection, hyperpituitarism, cerebral syphilis, hydrocephalus, and tumors.

Temporally contracted fields, particularly in the upper quadrants, are usually found when the pituitary is enlarged. Tendencies to homonymous hemianopsia are fairly frequent.

The clinical symptoms and signs of hypopituitarism are discussed in detail and twenty-seven cases in the series classed as hypopituitary are analyzed. In nineteen the eyegrounds were normal, in three there was primary optic atrophy, in another there was pallor of the temporal quadrants of the disc, in two the discs were hyperemic with blurred edges, in one the discs were covered by exudate, and

in one there were choked discs. Sixteen cases showed upper temporal slants in the visual fields; fourteen, enlarged blind spots; four, an upper temporal quadrant defect for red in the field of one eye; and four, an upper temporal quadrant scotoma. There was also bitemporal contraction as great above as below, homonymous hemianopsia, concentric contraction, and tubular fields. Among the patients with hypopituitarism, twelve suffered from recurrent convulsions. Seven showed bilateral upper temporal contraction; four, unilateral upper temporal contraction; and one, a tendency to homonymous hemianopsia. The type of pituitary headache, the deep bitemporal pain described by Pardee, is referred to. Temporal contraction of the visual fields should be a regular finding in these cases. Careful perimetry with the use of small test objects will reveal upper temporal slants which are missed in a casual charting of the fields.

In three hyperpituitary cases the fields showed evidences of pressure upon the chiasm. In cerebral syphilis, bitemporal limitation is the most frequent form of visual field defect. This was present in both of the author's two cases.

Two cases of hydrocephalus illustrate the effect of this condition upon the optic chiasm. The field differed from the most common fields of pituitary enlargement in that the upper temporal quadrants were no more contracted than the lower. Another case in this group showed bitemporal contraction which at times was greater in the upper quadrants.

The six cases of tumor all showed fields characteristic of pressure upon the chiasm. One was verified by operation and the others improved under treatment.

In conclusion, the author emphasizes the peculiar distribution of the visual fibers in the chiasm and in the tracts beyond, which allows characteristic changes in the field of vision. More attention should be given to perimetry in the early diagnosis of slighter disorders situated in the region of the chiasm and also those remote therefrom which exert secondary effects through the intervention of hydrocephalus. The use of small test objects is urged as they reveal tendencies toward bitemporal hemianopsia.

A. B. DYKMAN, M.D.

Amat, M. M.: Amaurosis and Amblyopia Produced by Quinine (Amaurosis de un ojo y ambliopía del congénere producidas pro la quinina). *Siglo med.*, 1923, lxx, 439.

The author brings out the following points:

1. Quinine is one of the most important drugs causing amaurosis or amblyopia.

2. The condition occurs usually after the administration of moderate doses (6, 8, 10 gm.) over a period of days.

3. Of the newer preparations, optochin has caused many cases, this probably being due to improper preparation and standardization.

4. The ocular manifestation is usually a fundus change. During the acute stage this may be im-

proved by treatment. Usually there is permanent damage to the optic nerve.

5. The treatment is primarily prophylactic, namely, the education of the medical profession as a whole as to the method of administering quinine and as to the prodromal symptoms of ocular toxicity. The active treatment consists in the administration of vasodilating drugs—nitroglycerin nitrites followed by gradually increased hypodermic doses of strychnine.

The author reports a case of malaria in which the outstanding feature was the fundus picture in the left eye, which showed a marked pallor of the papilla with blurred margins and a large paracentral and circumpapillary zone of retinal pallor extending almost to the margin of the peripheral retina. On account of the retinal pallor, the picture somewhat resembled that of embolism of the central retinal artery. The media of the right eye was so fogged that even a red reflex could not be obtained. The condition improved considerably under treatment with vasodilating drugs and strychnine, but permanent atrophy of the discs remained.

FRANKLIN P. SCHUSTER, M.D.

Williamson, R. T.: The Recognition of Hemianopsia in General Practice, and Its Diagnostic Importance. *Practitioner*, 1923, cx, 276.

Williamson advocates determining the field of vision in all cases of cerebral affections of sudden onset. In many acute cerebral diseases signs of hemiplegia do not appear and the symptoms have been attributed to other than focal brain lesions. If the fields of vision are determined, a definite hemianopsia may be revealed.

Three cases are reported in which hemianopsia was present when no other localizing symptom was found and the patient did not complain of any defect in vision. The sudden appearance of cerebral symptoms was followed by apparently prompt recovery, but the hemianopsia remained to show the location and the nature of the lesion.

In the acute cases the hemianopsia is due to softening in the region of the posterior cerebral artery following embolism or thrombosis. In the chronic cases it is due to tumor, abscess, basal meningitis, etc.

VIRGIL WESTCOTT, M.D.

Mosher, H. P.: The Combined Intranasal and External Operation on the Lachrymal Sac: Mosher-Toti. *Ann. Otol., Rhinol. & Laryngol.*, 1923, xxxii, 1.

Sauer, W. E.: Dacryorhinocystotomy; Combined Methods. *Ann. Otol., Rhinol. & Laryngol.*, 1923, xxxii, 25.

Mosher makes a straight incision at about the nasal edge of the lachrymal sac, clear down to the bone, and lifts the sac from its bed. On account of the thinness of the lachrymal bone in the posterior portion of the bed and the thickness of the ascending process of the maxilla in the anterior portion of the bed, he plunges a probe through the thin

portion and then enlarges this opening from either the nasal or the ocular side. Before this is done he removes the anterior portion of the middle turbinate and corrects any deviation of the septum which may be present. Consequently he performs two operations, allowing the wound of the first to heal before performing the second. At the second operation he cures the remaining anterior ethmoid cells, removes the nasal wall of the lachrymal sac and duct completely as far down as possible, and sutures the anterior nasal edge of the sac to the periosteum and the subcutaneous tissue at the anterior edge of the nasal opening. He then closes the skin incision very carefully.

Mosher claims this operation can be done on the simplest or the most complicated cases of lachrymal obstruction or disease, and that practically all of it can be done with good exposure. His results in seventy cases, which appear to be unusually good, he gives in tabular form.

Sauer emphasizes the fact that the anatomy of the region is not always constant; that in some cases the middle turbinate lies over the position of the lachrymal sac, in others is anterior, and in still others is posterior to this position. He introduces a Ziegler probe through the lower canaliculus and passes it into the nose low down, from the bed of the lachrymal sac. He thus outlines definitely the portion he wishes to enlarge. To effect the enlargement he uses a burr from the nasal side, removing the anterior end of the middle turbinate and the anterior ethmoid cells in part, if necessary. He states that he has obtained very good results and claims that his method is more simple than others described. It cannot be used, however, in complicated cases of sac infection.

The article contains cuts illustrating both of these operations.

THOMAS D. ALLEN, M.D.

Chance, B.: The Etiology of Uveitis. *Am. J. Ophth.*, 1923, vi, 284.

Uveitis is an endophthalmitis, either primary, when the original site of the disease is in the iris or ciliary body, or secondary, when an affection of neighboring parts has been transmitted to the iris or ciliary body. Its origin is either exogenous or endogenous. Although some cases must be considered non-bacterial, the condition is usually dependent upon micro-organisms or their toxins. The poison is probably present in the aqueous humor and reaches it through the blood stream.

In the experience of the author, chronic iridocyclitis is rare in the first fifteen years of life and in extreme old age. It is most common between the twentieth and fortieth years and more common in women than in men. A greater number of cases are reported from northern regions than from warmer regions, and during damp seasons than in dry. The frequency of primary uveitis among all types of ocular disease is from 1 to 3 per cent. Generally it is unilateral. In bilateral cases it usually does not begin on both sides at the same time.

The author does not discuss cases of iridocyclitis resulting from a wound of the cornea-sclera nor from the toxæmia derived from such wounds, dealing only with those dependent upon infectious diseases (excluding tuberculosis and syphilis), internal areas of suppuration, and certain disturbances of metabolism. The most important conditions tending to cause uveitis are tuberculosis, syphilis and gonorrhœa, rheumatism and gout, and the acute infectious diseases such as diphtheria, pneumonia, influenza, epidemic meningitis, malaria, etc. The association of uveitis with acute rheumatic fever must be extremely rare, but the possibility of the metastasis of purulent matter must not be overlooked.

The fruitful results of a search for focal infections throughout the body has greatly reduced the number of cases ascribed to rheumatism. Affections of the anterior segment of the globe occurring in the subjects of the various forms of polyarthritis and muscular rheumatism are but additional manifestations of the infection or toxæmia which causes the muscular and fibrous tissue pain and lesions. In cases of gout the cause of the general disease is probably responsible for the eye affection also. Many of the cases classified as rheumatic are in reality gonorrhœal. This should be borne in mind in the treatment of cases of chronic insidious uveitis in women. The involvement of the uveal tissues does not take place until the active symptoms of the gonorrhœa are subsiding. Many cases of chronic iridocyclitis accompanied by exudation into the anterior chamber will be found of gonorrhœal origin.

In diabetes the relationship of iritis to the general health has not been satisfactorily worked out. The occurrence of boils and carbuncles in diabetics may be attributed to infection and accepted as an explanation of the iritis. However, these symptoms may be an expression of a common infection; the causes that were responsible for the faulty nitrogen metabolism and the diabetes may also be the cause of non-bacterial inflammation of the uveal tract.

There are two types of uveitis dependent upon dental infection. One is an acute iritis with extension to the ciliary body and accompanied by intense exudation into the tissues and clouding of the sight. In most cases of this type the teeth are badly decayed. The other is that occurring in cases in which X-ray examination discloses apical abscesses and gingival inflammation. This is the chronic uveitis which is confined to the iris and associated with little tendency to exudation. Infection is carried through the vascular or lymphatic systems.

Chronic inflammation of the tonsils is next in importance to pyorrhœa as a source of iridocyclitis. In the management of every case of acute and chronic iridocyclitis the tonsils and the lymphatic ring should be investigated.

Some cases of uveitis are of intestinal origin, especially those which show relapses after every

indiscretion in diet. In these, the condition is probably a manifestation of protein sensitization for certain foods.

The article is concluded with a discussion of the pathogenesis of bacterial uveitis, attention being drawn to the fact that the ocular tissues favor the growth of bacteria.

A. B. DYKMAN, M.D.

Butler, T. H.: Some Unusual Results of Operations for Cataract. *Proc. Roy. Soc. Med., Lond.*, 1923, xvi, Sect. Ophth., 21.

The author reports seven cases.

The first case illustrates aniridia following a preliminary iridectomy. The iris was completely severed at its root. Butler cannot account for the result as no traction was made on the iris, nor did the patient move the eyeball while the iris was in the grasp of the forceps.

The second case was a case of erroneous diagnosis. A mature cataract of the right eye was diagnosed by an assistant. No red reflex was obtained. Preliminary iridectomy was performed. The patient returned six months later with the fundus clearly visible. The author believes this was a case of hæmorrhage in the anterior vitreous with absorption; hence the clearing of the media.

The third case was a case of total absorption of a cataractous lens following preliminary iridectomy. The author is convinced that no injury was done the lens capsule and is unable to account for the result unless the severe inflammation following the operation had an influence in the absorption.

In the fourth case there was a bulging cicatrix following a very small iris incarceration in the iridectomy wound. This occurred seven months after the operation.

In Cases 5 and 6 there was rapidly increasing astigmatism following cataract extraction.

Case 7 was a case of what the author calls a mild sympathetic ophthalmitis which took the form of a subacute glaucoma of the sympathizing eye. This followed cataract extraction on the exciting eye. Enucleation of this eye was followed by reduction of tension in the remaining eye.

STEPHEN A. SCHUSTER, M.D.

Woods, A. C., and Dunn, J. R.: An Etiological Study of a Series of Optic Neuropathies. *J. Am. M. Ass.*, 1923, lxxx, 1113.

The authors studied a group of eighty-six cases presenting optic nerve changes with a view to determining the possible relationship of any of these changes to diseases of the accessory nasal sinuses.

Forty per cent of the series were caused by syphilis, the predominating type of lesion being primary optic atrophy. Eleven cases in the series could be traced to disease of the accessory nasal sinuses. All of the patients had greatly diminished vision with clear media and normal fundi. The visual fields showed a disturbance in central vision with a central scotoma which varied in intensity from relative to absolute. The laryngological diagnosis in these cases

included chronic sphenoiditis, ethmoiditis complicated by sphenoiditis, infection of the antra, and pansinusitis. The cases in the acute stage were all cases of retrobulbar neuritis showing normal fundi. The operative results in these cases were excellent. Of the cases in the atrophic stage, 70 per cent showed a picture of primary atrophy of the papillomacular bundle and the rest showed evidence of preceding inflammation around the nerve head.

There were ten cases in which brain tumors were responsible for the disorder: in four, a tumor of the cerebellopontile angle; in two, a hypophyseal tumor; in two, a tumor of the cerebrum; in one, a tumor of the floor of the fourth ventricle; and in one, a prechiasmal tumor of the left optic nerve.

There were five cases in which multiple sclerosis appeared to be the causative factor.

Of ten cases of toxic amblyopia two were due to ethyl alcohol and the rest to methyl alcohol. Five of the patients observed in the atrophic stage showed the picture of atrophy of the papillomacular bundle. Four showed primary optic atrophy, and one in the acute stage showed an optic neuritis.

There were twelve cases in which a definite diagnosis could not be made. Five showed primary optic atrophy, four a secondary atrophy, and three an atrophy localized especially in the papillomacular bundles.

In the authors' opinion it seems clear that the type of optic nerve disturbance caused by sinus disease is generally a rather definite clinical entity. The picture constantly observed is that of a retrobulbar nerve disturbance, diminished vision, the defect being in the central field, normal field outlines, and normal fundi. Their studies indicate that inflammation and elevation of the optic disc must be an exception rather than the rule in disorders of the optic nerve caused by sinus disease.

A. B. DYKMAN, M.D.

EAR

Knudsen, V. O., and Shambaugh, G. E.: The Sensibility of Pathological Ears to Small Differences of Loudness and Pitch, Including a Report on Seven Cases of Diplacusis. *Laryngoscope*, 1923, xxxiii, 353.

This is a preliminary report on research on the sensibility of the ear to small differences of loudness and pitch, and is not presented as a practical additional aid in the diagnosis or treatment of ear conditions, although this will probably develop later and principally along the lines of improvement in hearing devices.

The authors point out that to prescribe artificial aids for hearing intelligently it is essential to know the sensibility of the ear to small differences of loudness and pitch, since the interpretation of speech and musical sounds requires this capacity. If the pitch- and intensity-discrimination power is normal in a pathologic ear, appropriate amplification of sounds restores normal hearing; if it is subnormal, mere amplification is not sufficient.

The method of just discernible differences in loudness and pitch is employed. The source of sound used is a telephone receiver actuated by energy from a vacuum tube oscillator producing tones between 30 and 20,000 d.v. The circuit is so designed that the tone emitted will fluctuate abruptly from a tone of one loudness to a tone of greater or less loudness of equal duration at a rate of 50 per minute.

If the difference in loudness of the two tones is greater than the smallest perceptible difference for the ear under test, the two tones will be heard as a flutter tone; otherwise they will be heard as a steady tone.

A similar procedure is used for pitch except that the frequency instead of the intensity of tone is made to fluctuate alternately.

It was found that the normal ear can perceive smaller percentages of change in loudness for moderate and loud tones—a difference in about 10 per cent or 400 gradations of loudness for tones of medium pitch—than for low tones. The sensibility to small differences of loudness depends on the pitch, but the average curve for nineteen ears indicated that sensibility to loudness is almost independent of the pitch over the range used in speech and music. Average curves showed that for higher tones the normal ear can perceive a difference of pitch corresponding to one-twentieth of a semitone or about 2,000 gradations of pitch within the audible range. In a series of pathologic ears affected by various types of fixation deafness, nerve degeneration, or diplacusis and combinations, the results indicated that these processes do not greatly affect the pitch- and intensity-differentiating mechanisms.

STEPHEN A. SCHUSTER, M.D.

Bridgett, F.: The Determination of the Line of the Descending Portion of the Facial Canal in Doing the Mastoid Operation. *Laryngoscope*, 1923, xxxiii, 329.

On the basis of a series of specimens of macerated temporal bones, the author points out the established landmarks, viz.: (1) the supermeatal triangle, (2) the linea temporalis, (3) the posterosuperior wall of the meatus, and (4) the bulging on the inner wall of the mastoid cavity produced by the sigmoid groove.

In the curetted and cleaned-out mastoid cavity the operator does not have a well-established landmark corresponding to the descending portion of the aqueductus fallopii below the point at its inner turn on the inner wall of the antrum to its termination at the stylomastoid foramen. The author points out that the digastric fossa invariably leads from behind forward, directly to the stylomastoid foramen. When the cortex of the mastoid cavity is removed and the cellular structure exenterated there is a ridge corresponding to the digastric groove which is formed by the outward and downward growth of the mastoid process. Internally, the digastric groove leads invariably to the stylomastoid foramen.

This point in the mastoid cavity at the juncture of the ridge with the posterior wall of the external auditory canal, which corresponds to the stylo-mastoid foramen externally, the author calls the "infra-mastoid juncture." A line connecting this juncture with the inner wall of the antrum maps out the facial canal.

FRANKLIN P. SCHUSTER, M.D.

Friedman, J., and Greenfield, S. J.: Primary Thrombosis of the Mastoid Emissary Vein with Secondary Involvement of the Lateral Sinus. *Laryngoscope*, 1923, xxxiii, 347.

After reviewing briefly the gross and topographical anatomy of the mastoid emissary veins, the authors discuss the mode of infection of these veins. Secondary involvement is not uncommon and usually follows suppuration of the post-auricular glands, involvement of posterior groups of mastoid cells, or thrombosis of the lateral sinus. In discussing primary involvement of the emissary the authors refer to infection of this structure with secondary involvement of the lateral sinus, although the emissary was infected secondarily to a mastoiditis. They report a case of this character. A complete simple mastoidectomy was performed. The lateral sinus was found normal. The thrombus in the emissary vein was traced as far as the lateral sinus. The vein was left undisturbed at the primary operation.

The temperature, pulse, and blood count were rather characteristic of systemic infection although blood cultures were sterile. The condition became more serious until the jugular vein was ligated, the lateral sinus was opened, and the thrombosed emissary had sloughed away. Recovery was uneventful except for a transient acute nephritis which cleared up.

STEPHEN A. SCHUSTER, M.D.

NOSE

Syme, W. S.: Nasal Accessory Sinus Disease and Systemic Infection. *Practitioner*, 1923, cx, 353.

Syme urges examinations of the accessory sinuses when a search is made for a focus of infection, and cites several cases in which removal of the infection cleared up the general trouble. The most frequent symptoms produced by the sinus infection are nasal catarrh, post-nasal dropping, and frequent head colds. The only method of proving that the antrum is not the focus of infection is puncture and lavage. In negative cases no secretion except possibly a slight trace of mucus is obtained. Antrum disease may occur at any age.

O. M. Rorr, M.D.

Lewis, F. O.: The Radical Frontal Sinus Operation, with Report of Cases. *Ann. Otol., Rhinol. & Laryngol.*, 1923, xxxii, 305.

The author believes that in a large percentage of cases in which there is a chronic suppurative process of the frontal sinus, the radical operation is the method giving greatest assurance of permanent relief from such distressing symptoms as recurring or per-

sistent pain and headaches, purulent nasal and post-nasal discharge, alarming vertigo, gastro-intestinal lesions, and focal infections. In cases with external fistulae, intracranial complications, extremely large sinuses (often with septal divisions), bone necrosis, severe orbital complications, and unsuccessful intranasal operations the radical procedure is the only method of treatment.

By the radical operation the author means the Killian procedure or one of its many slight modifications. By this method of approach it is possible to visualize the entire field of operation and to determine the contents of the sinus. Lewis has little faith in the intranasal method, even in suitable cases.

This article is based on a series of forty cases. A considerable number of them are reported in detail.

Emphasis is placed on the importance of the post-operative treatment and the correction of any marked deformity which may be present after the operation.

A. R. HOLLENDER, M.D.

Skilern, R. H.: The End-Results of Radical Operations on the Accessory Sinuses. *Ann. Otol., Rhinol. & Laryngol.*, 1923, xxxii, 139.

By "radical operation" is meant an operation performed with the single purpose of giving absolute relief from symptoms with a more or less perfect cure, regardless of the severity or extent of the surgical procedure.

The sequelae of radical operations on the frontal sinus may be: (1) persistence of pain; (2) hemi-anæsthesia of the brow and scalp; (3) persistence of discharge; (4) neuralgia about the cicatrix; (5) diplopia; or (6) epiphora.

Radical operations on the maxillary sinus are seldom followed by unpleasant after-effects. Such after-effects are: (1) anæsthesia of the upper lip and teeth on the side operated upon; (2) permanent fistula into the mouth; (3) excessive dryness of the nose on the affected side; and (4) the gradual return of the discharge after an apparent cure.

Important sequelae in the sphenoid sinus are: (1) gradual closure of the opening before the suppuration has ceased, and (2) re-infection with intermittent suppuration.

Radical operations on the ethmoid labyrinth may be followed by: (1) the continuance of the discharge; (2) the continuance of the pain; (3) partial occlusion of the nostril; or (4) ocular symptoms which were not present previous to the operation.

The author believes that in cases of disease of the ethmoid labyrinth it is best not to try to effect a cure in one operation, and that the middle turbinate should be removed in a preliminary operation to allow better aeration and drainage and a more careful study of the labyrinth. In conclusion he states that we should remember that experience has taught that radical operations upon the accessory sinuses do not always mean radical cures.

W. B. STARK, M.D.

MOUTH

Willcox, W., Goadby, K., Hunter, W., Hern, W., and Others: A Discussion on Dental Sepsis as an Etiological Factor in Disease of Other Organs. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Odont., 7.

The extraction of teeth without proper indications is to be strongly condemned. On the other hand, the preservation of teeth which are foci of infection leads to impairment of health and disease of other organs.

The organisms commonly found in dental infections are staphylococci and streptococci. The streptococci are usually classified in three groups: the hæmolytic group, the viridans group, and the indifferent group.

Dental sepsis may be secondary to some other disease or toxæmia. An excellent illustration of this is scurvy, in which marked dental sepsis is one of the earliest symptoms and a diet rich in antiscorbutic vitamins leads to rapid improvement and perhaps to the disappearance of the dental sepsis.

In infections of the teeth and gums the focus of infection should be removed by extraction or suitable treatment. It should be remembered also that very frequently intestinal infection results from dental infection and that this may require treatment by such methods as irrigation of the colon or the use of an autogenous vaccine.

JAMES C. BRASWELL, M.D.

Paterson, H. J.: A Note on the Operative Treatment of Malignant Disease, with Special Reference to the Tongue. *Lancet*, 1923, cciv, 951.

A malignant growth spreads peripherally by invasion of the surrounding tissues and distally by permeation of the lymphatic system. In many cases in which an incomplete resection was done and invaded lymph glands were left, the patient lived for ten to twelve years, and in some, apparent recovery resulted. The lymph system is the body's defense against the spread of the disease, and to a limited extent is able to deal with these cells.

If the surgeon were certain to remove the entire growth without leaving any cells, it would be correct to remove all lymph glands involved, but when these glands are gone, any cancer cells remaining in the wound will find their way to more distant glands beyond the reach of surgery. If the glands draining the field are left to act as scavengers, they may arrest the spread of any cells remaining in the wound and may then be removed before any cells within them can spread to more distant regions.

The author's method consists in the removal of the growth with a cautery followed by a secondary dissection of the glands from three to four weeks later. He reports five cases of carcinoma of the tongue treated in this manner. Four of the patients are alive and free from recurrence after a period of seven years. The fifth cannot be traced.

WILLIAM J. PICKETT, M.D.

Blair, V. P.: Ranula. *Ann. Surg.*, 1923, lxxvii, 681.

Two types of mucoid cysts occur in and about the floor of the mouth:

1. Relatively small, rare cysts which originate from various mucous or submucous glands, lie in or just under the mucosa of the floor of the mouth or under the surface of the tongue, and tend to protrude into the mouth. Complete removal of these is a simple procedure.

2. The more common type of ranula which lies in the floor under the mucosa and submucous tissues and burrows so that the amount discernible within the mouth does not indicate the true extent of the condition. Complete removal may be difficult or surgically impracticable.

The author does not accept the commonly held view that the cause of ranula is an obstruction cyst of the sublingual gland. Obstruction of the submaxillary duct or dilation of a Fleischmann bursa seems still more unreasonable as an explanation. He believes with Thompson that deep ranula and related cysts have their origin in migrated portions of the cervical sinus. This hypothesis will explain all hitherto observed types such, for example, as that which extends up to the base of the skull as a para-facial cyst and others that extend an indefinite distance into the neck or submental region.

Thompson calls attention to the impracticability of removing the para-facial extension of the cyst when it is closely adherent to the base of the skull and the styloid process. Simple incision and cauterization seldom cure. To avoid excision, Thompson recommends a triangular incision and suturing of the triangular flap down into the bursa to form a permanent drainage fistula. Blair suggests using a quadrilateral flap from the mucosa of the cheek to establish permanent drainage from an unremovable portion of a para-facial extension cyst.

WALTER C. BURKET, M.D.

THROAT

Syme, W. S.: Surgical Diathermy in the Treatment of Malignant Disease of the Throat. *Glasgow M. J.*, 1923, n.s. xvii, 221.

The author reports the results in sixteen cases of malignant disease of the throat treated in the past two years by surgical diathermy. Six of these cases were presented at the meeting of the Royal Medico-Chirurgical Society of Glasgow. Of these six, four were referred as inoperable, and two were early cases of epithelioma of the tonsil and fauces. In one of the four inoperable cases, with a malignant growth involving the upper and lower jaws, the angle between the fauces, the tongue, and the side of the pharynx, there was a large glandular swelling in the anterior triangle. The primary growth was removed by surgical diathermy in June, 1922. In February, 1923, the glandular enlargement had decreased to the size of a small egg. It was then removed. Microscopic examination showed "a very good attempt at cure." Most of the gland had

become converted into dense fibrous tissue which was crowding upon the few cell rests which remained. In two cases operated upon nine and eight months previously there has been no recurrence to date. The others were operated upon four and five weeks previously.

In several cases in which cure was out of the question great relief was obtained by the use of diathermy.

The author remarks particularly on the absence of shock and severe pain following operation and the rapid recovery even after the removal of extensive growths.

SUMNER L. KOCH, M.D.

New, G. B.: Laryngeal Paralysis Associated with the Jugular Foramen Syndrome and Other Syndromes. *Am. J. M. Sc.*, 1923, clxv, 727.

The author reviews the literature on complete unilateral paralysis of the recurrent laryngeal nerve associated with the jugular foramen syndrome and other syndromes, and reports seven cases observed in the Mayo Clinic. He points out that there is a difference in the nomenclature for the internal branch of the eleventh nerve, which in the United States is classified as part of the tenth nerve, and gives a table showing the effects of paralysis of the last four cranial nerves, according to Vernet and Oppenheim.

The author's first case was a case of paralysis of the right tenth, eleventh, and twelfth cranial nerves due probably to a neoplasm in the region of the jugular foramen. In the second case, the right third, fourth, fifth, sixth, seventh, ninth, tenth, eleventh, and twelfth nerves were affected because of the extension of an epithelioma in the region of the jugular foramen and possibly its intracranial extension. In the third case, the last four cranial nerves and the cervical sympathetic nerve were affected by what was probably a lymphosarcoma of the right side of the nasopharynx and the pharynx. In the fourth case the ninth, tenth, eleventh, and twelfth cranial nerves were affected by an extension of a mixed-cell carcinoma of the parotid region to the jugular foramen region. In the fifth case, the ninth, tenth, and twelfth nerves were affected by a mixed tumor in the region of the jugular foramen, and it seemed possible that the cervical sympathetic was partially involved. In the sixth case, the third, fourth, fifth, sixth, ninth, tenth, and twelfth cranial nerves, and probably the cervical sympathetics, were involved by a rapidly growing nasopharyngeal tumor, which was probably a lymphosarcoma. Deafness on the right side was due probably to encroachment on the eustachian tube. The seventh case appeared to be a mixed tumor of the jugular foramen region involving the last four cranial nerves on the right side.

In the discussion the author points out that in six of the seven cases in the series there was complete unilateral laryngeal paralysis with the affected vocal cord in the intermediate or cadaveric position rather than in the midline position usually taken by it

after an injury to the recurrent laryngeal nerve. In some of the cases the involvement of the cranial nerves was very extensive, probably because of extensions of the growth (which may or may not have been primary in the nasopharynx) into the orbit, intracranially, and into the region of the jugular foramen. The lesion in all the cases, with possibly one exception, was a neoplasm in the region of the jugular foramen originating in the pharynx or nasopharynx. Four of the tumors were of slow growth and two of rapid growth, and the duration of symptoms ranged from six weeks to twelve years. Pathologically, carcinomata of the mixed-cell type, basal-cell epitheliomata, and lymphosarcomata are represented.

The ages of the patients ranged from 35 to 62 years. The sexes were affected about equally.

It was noted that patients with paralysis of half of the tongue had trouble in swallowing liquids; in those with paralysis of the palate, food became lodged back of the nose, and those with paralysis of the pharynx had difficulty in swallowing solids. Cardiac and respiratory disturbances occurred in only two cases. Myosis and narrowing of the palpebral fissure occurred in four cases because of involvement of the cervical sympathetics.

Moore, I.: Operative Procedures in the Treatment of Stenosis of the Larynx Caused by Bilateral Paralysis of the Abductor Muscles, with Special Reference to a New Method by Means of Which It Is Suggested that the Airway May Be Permanently Enlarged and the Patient Decannulated. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Laryngol., 32.

After reviewing the various operative procedures used in the treatment of stenosis of the larynx caused by bilateral paralysis of the abductor muscles, Moore describes a new method—anterolateral transplantation of the vocal cord—which he calls "cordopexy."

The latter procedure was proposed by Trotter who suggested making an incision transversely across the middle of the thyroid cartilage, inserting a retractor, obtaining a good view of the anterior insertion of the cords, separating from the thyroid ala by a circular incision the portion of cartilage to which they are attached, and drawing the latter forward and laterally along the transverse incision through the thyroid ala.

Working on the cadaver, Moore found that the approach to the larynx by a transverse incision is not satisfactory because it is impossible to locate accurately the anterior insertions of the cords from the exterior of the larynx and avoid cutting them.

Moore suggests performing a thyrofi ssure, excising a triangular piece of cartilage (along with the attached cord), elevating the periosteum in the vicinity of the released cord, and drawing the piece of cartilage with the attached cord along a horizontal incision and anchoring it after punching out a circular piece of cartilage in which the cord can lie.

By means of this operation the cord or cords are not only displaced laterally, but are shortened in their antero-posterior diameter. The tonicity of the paralyzed cord tissues is thus increased. Transferring a cord $\frac{1}{4}$ in. from the middle line was found to be sufficient to fix it in the position of complete abduction.

O. M. ROTT, M.D.

Přechtěl, A.: The Importance of Infection During Laryngectomy and a Contribution to the Technique of This Operation (Importance de l'infection dans la laryngectomie, et contribution à la technique de cette opération). *Acta oto-laryngol.*, 1922, iv, 352.

The author performs a two-stage operation. The first stage consists of a tracheotomy, an H-incision, severance of the pre-tracheal muscles and the isthmus, ample freeing of the trachea, anæsthetization of the mucous membrane and the excision of an elliptical piece, and uniting this tracheostoma with the skin. The second stage, the laryngectomy, is done about fourteen days later. Two incisions are made along the inner edge of the sternomastoid muscles to the edge of the tracheostoma, and the lymphatic glands of the region are then removed. After the induction of anæsthesia of the mucous lining of the pharynx and larynx a Moure cannula is inserted to close the trachea. The incisions along the sternomastoid muscles are connected by a transverse incision close above the tracheostoma. The larynx is then exposed and dissected out, the pharyngeal mucous lining being spared as far as possible.

The posterior portion of the cricoid cartilage is not removed unless this is absolutely necessary. Immediately after the laryngectomy the opened part of the pharynx is closed with a continuous suture. Tight closure of the pharynx is assured by U-sutures including the median fascia and the muscles of the pharynx. The musculature of the œsophagus is then picked up with one or two U-sutures and the formation of a dead space is prevented by knotting these sutures over a tampon. Suturing the flap to the anterior wall of the œsophagus above the tracheostoma assures isolation of the wound from the trachea.

By this method the author has performed seven laryngectomies. Six of the patients are still alive and one succumbed to a recurrence three and one-half months after the operation. FRIEDBERG (Z).

NECK

Guthrie, D.: What Types of Goiter Should Receive Medical Treatment? *Atlantic M. J.*, 1923, xxvi, 506.

The author points out that there is much unnecessary thyroid surgery. Patients with non-toxic goiter and pulmonary tuberculosis, an effort syndrome, a psycho-neurotic state, heart disease, paroxysmal tachycardia, etc., should be safeguarded by a painstaking study, including rest in bed under observation and basal metabolism determinations.

Simple endemic goiter, the goiter of adolescence, and the goiter of pregnancy, so common in goiter districts, should be treated with iodine, but the occasional enormous diffuse simple goiter may be operated upon. Colloid goiters are usually symptomless and should be treated medically, but if deformity and pressure symptoms are present surgery is justifiable. The solitary colloid cystic goiter is best treated by operation. In the author's opinion, cancer of the thyroid cannot be cured by surgery. For cases of non-toxic adenomata he recommends prophylactic treatment to prevent thyroid intoxication, but states that cystic or calcareous degeneration in this type is an indication for surgery. In cases of quiescent adenomata, iodine and thyroid extract are dangerous as they may provoke an active state; the X-ray and radium are valueless. The treatment of toxic adenoma is operation during the insidious onset. This prevents myocardial injury and is followed by prompt recovery.

The treatment of persons acutely sick with exophthalmic goiter is essentially medical and is best done in institutions used to handling such cases. During a rising metabolism or exaggeration of symptoms, operation is contra-indicated. The preparation of these patients for operation can be greatly facilitated by the use of the X-ray or radium. The author leaves open the question as to the curative value of the X-ray and radium, and cautions that these agents should be employed only by those skilled in their use. As frequently no exophthalmos or glandular enlargement is to be seen in initial attacks, the condition is diagnosed as a nervous disease and valuable time is lost in medical treatment when early surgery should be instituted. Even when a correct diagnosis has been made, time is often lost by employing medical instead of surgical treatment. Guthrie believes that there are mild or abortive types of exophthalmic goiter which clear up without treatment, and that in certain selected mild forms of hyperthyroidism it is safe to give medical treatment a thorough trial, provided the patient is willing to co-operate in every way and will consent to surgical treatment if it seems necessary later.

FRANCIS H'DOUBLER, M.D.

Pemberton, J. de J.: The Mortality in the Surgery of Exophthalmic Goiter. *Surg., Gynec. & Obst.*, 1923, xxxvi, 458.

The mortality rate following surgical procedures on persons with exophthalmic goiter has been reduced to 1.005 per cent in terms of operation and to 1.73 per cent in terms of patients.

The estimation of the basal metabolic rate and the characteristic pathologic findings of diffuse parenchymatous hypertrophy of the thyroid gland are essential checks on the clinical diagnosis of exophthalmic goiter.

Statistics based on goiter operations do not give a correct idea of the operative risk in cases of exophthalmic goiter as the mortality rate will be diluted in direct ratio to the number of simple goiters

without hyperthyroidism which are included in the computation.

In computing the mortality rate all deaths which occur in the hospital, without regard to the cause of death or the length of time after operation, should be credited to surgery.

The danger of reactions following surgical procedures can be reduced to the minimum by preliminary treatment and painstaking care in the management.

The mortality of the surgery of exophthalmic goiter is highest among patients with visceral degenerative changes. The operative risk is less and the benefits derived are greatest when the patient comes to operation early in the course of the disease before degenerative changes have occurred.

The prevention of operative and postoperative complications by painstaking care in the details of the management of surgical cases is essential for a low mortality rate.

Strauch, B.: Tumors of the Parathyroid Glands and Their Relation to Osteomalacia (Ueber Epithelkoepcherchen-Tumoren und ihre Beziehungen zu den osteomalacischen Knochenerkrankungen). *Frankfurt. Ztschr. f. Path.*, 1922, xxviii, 319.

This article is based upon the postmortem findings in the case of a woman 27 years old who showed an enlargement of the left side of the neck and died of a severe typical puerperal osteomalacia. The tumor in the neck proved to be a tumor of the parathyroid glands measuring 4.5 by 3.2 by 3.5 cm., which was well encapsulated and presented a finely nodular surface. The associated half of the thyroid gland was the size of a walnut. Softening of bone was particularly marked in the skull, thorax, and pelvis.

About one-third of the parathyroid tumor consisted of tissue rich in gland cells, while half of the remaining two-thirds contained loose connective-tissue strands in which gland cells and nests were

irregularly strewn. In the part rich in gland cells the parenchyma elements were chiefly pale rose-colored mother cells, some of which formed vesicles filled with colloid substance. Here and there were eosinophile cells, generally in groups of from thirty to forty. In the sections poor in gland cells, the mother cells alone were found, and were paler as the periphery was approached. The halves of the thyroid gland showed certain signs of atrophy; in the other endocrine glands there were no changes.

The three other parathyroids were not to be found; therefore the tumor must be regarded as an overgrowth from excessive functional demands, as this is in conformity with the histologic findings which showed all the constituents of the normal parathyroid. The growth was the result, rather than the cause, of a disturbance in the calcium metabolism. In contradistinction to this, the true adenoma of the parathyroid glands is composed of cellular elements of one type only, either mother cells or eosinophiles. Therefore, enlargements of the parathyroids accompanied by bone disease are described as "hyperplastic tumors," while those without this tendency are described as "dysontogenetic (Schwalbe) tumors." The hyperplastic tumor formations without alteration in the bones, which are described in the literature, the author designates as "parathyroidomata." He points out that in these cases no particular examination was made of the bony system.

Tumors of the parathyroid glands throw very little light on the etiology of bone softening, but constitute further proof of the relationship of the parathyroids to calcium metabolism. Whether the parathyroids neutralize the calcium-destroying acid, whether a decomposing action of other glands of internal secretion is counteracted by hyperplastic proliferation, and whether the kidneys have a part in the disease picture through increased calcium secretion are questions which still remain unanswered.

BUDDE (Z).

SURGERY OF THE NERVOUS SYSTEM

BRAIN AND ITS COVERINGS; AND CRANIAL NERVES

Genewein, F.: The Mechanical Processes in Concussion and Contusion of the Brain (Die mechanischen Vorgänge bei der Gehirnerschütterung und der Gehirnkontusion). *Beitr. z. klin. Chir.*, 1923, cxxviii, 348.

On the assumption that the brain reacts to mechanical influences like a fluid, many writers attempt to explain cerebral concussion and contusion by hydrostatic and hydrodynamic laws. According to Genewein, many circumstances and observations speak against this conception. In every case of bullet wound of the brain one is struck by the disproportion between the caliber of the bullet track and that of the shot, the former being much greater than the latter. In a through-and-through bullet wound of the brain, the immediate "primary" track, corresponding to the caliber of the bullet, is surrounded by a more or less extensive zone of necrotic brain substance, the "secondary" track. The lumen of this secondary track is variable. This necrosis around the primary track is due to the fact that the entire mass of brain tissue corresponding to the primary bullet track is pressed by the force of the shot into the surrounding tissue, the continuity of the latter being thereby ruptured. If the speed of the bullet decreases within the brain, the diameter of the necrotic zone becomes correspondingly narrower. This is why the diameter of the secondary bullet tract is always distinctly less toward the end of the track. From these facts Genewein concludes that the brain is compressible, but that for its compression great force is necessary; also that it does not favor the transmission of mechanical energy.

In a study of dull injuries of the skull not causing a fracture Genewein always found a necrosis which, beginning at the site of the blow, extended with varying thickness through the entire diameter of the brain and in direct continuation of the trajectory. The same finding was made also in depressed fractures and penetrating wounds of the skull. A compressible, slightly elastic body which conducts the waves of force in only one direction is to be classified as a solid body rather than as a fluid. From this viewpoint it is easy to explain the not-infrequent observation that in dull injuries of the skull the large cortical areas are injured, those lying opposite the point of application of the force as well as those next to it (contre-coup).

Cerebral concussion is due usually to the effect of a sudden blow, the force of which travels through the brain in a straight line and in only one direction. This explains why the entire brain is never affected

by the trauma, and loss of consciousness, the symptom which could best be explained by the theory that the brain is a fluid, occurs only if the waves of force arising from the trauma pass through the center of consciousness.

In conclusion the author discusses briefly the pathologico-anatomical findings in concussion of the brain and comes to the view that a definite pathologic finding represents only the end of the pathologic process initiated by the trauma. Every application of force to the brain is followed by injury to the nerve cells in a definite manner and direction, which requires a certain time for its development and its microscopic demonstration. Therefore it follows that a negative pathologic finding in a case of brain injury with distinct symptoms of concussion means nothing, and that even macroscopic extravasation of blood is not presumptive evidence of traumatic brain disturbance. However, it may be said with practical certainty that the basis of all disturbances caused by trauma is a change in the nerve cells. This holds true also for concussion of the brain, which is nothing more than the result of force. The factors responsible for contusion and concussion of the brain are the same. According to the pathologic findings the difference is only a difference of degree; cerebral hæmorrhage means a heavier blow.

BODE (Z).

Ritter, A.: Brain Injuries with Predominating General Symptoms: Their Late and Persisting Results (Die Gehirnverletzungen mit Vorherrschen der Allgemeinsymptome: ihre Spät- und Dauerfolgen). *Deutsche Ztschr. f. Chir.*, 1922, clxxv, 1.

In a study of the large accident material of the Zurich clinic so far as it related to lesions of the head, the author found that those cases designated as concussion of the brain made up a very high percentage of head injuries and a still higher percentage of brain injuries. In the 12,000 accident cases treated during the last twenty years, 1,388 (12 per cent) showed lesions of the head, and in 740 (53 per cent) of the latter there was a lesion of the brain, while in 155 the condition was diagnosed as uncomplicated concussion.

Ritter classifies cases of concussion of the brain into three types, viz.: concussion of the medulla oblongata; concussion of the brain in the strict sense of the term; and contusion of the brain.

Concussion of the medulla oblongata is characterized by loss of consciousness, respiratory and circulatory disturbances, vomiting, and changes in the blood pressure. All these symptoms are transitory, attain their climax immediately after the accident, and then steadily decrease. Phenomena which appear later or persist are indicative of severe organic

changes. Characteristic of the condition is defective memory regarding the accident. This was present in 98 per cent of the cases reviewed.

Experimental research (Breslauer, Rahm) refers all symptoms to pressure on the medulla oblongata caused, in most cases, by a blow on the forehead or occiput. A relatively slight trauma may cause death through simple pressure on the medulla, especially on the respiratory center. In uncomplicated concussion of the medulla oblongata the pathologico-anatomical findings are entirely negative.

In 65 per cent of the cases reviewed none of the symptoms persisted. In the others, the average duration of symptoms was from three to six months. The prognosis is therefore favorable.

Concussion of the brain in the strict sense of the term is characterized by vertigo, a staggering gait, headache, depression, etc. Unconsciousness is not a sequela in a third of the cases, but in some it occurs immediately and is very deep. In general, the entire picture is less uniform than that of a concussion of the medulla oblongata and the disappearance of the phenomena is slower. As a rule the concussion is caused by extensive, though not very severe, violence on the lateral parts of the cranium.

The pathologico-anatomical findings in artificially induced concussion are swelling of the cell bodies, dust-like homogeneity of the chromaffin outline or breaking down of the cell, and detritus with the formation of very small, scattered islands of necrosis. Every concussion is therefore based on organic changes. The symptoms were found to persist on an average for nineteen and five-tenths months, decidedly longer than those of concussion of the medulla oblongata, but finally disappeared entirely.

Contusion of the brain is more severe than concussion of the brain. It is characterized by distinct focal symptoms, irritative and paralytic phenomena of motor and sensory zones, and disturbances in various senses. The multiplicity of the symptoms points to diffuse change in the brain. Unconsciousness continues longer, and the pulse and respiration become sympathetically involved. Contusion results usually from severe violence on the lateral parts, particularly in the temporal and parietal regions. Pathologico-anatomical examination reveals clearly recognizable capillary apoplexies with cell degeneration and detritus. The duration of the symptoms is considerably longer than that of concussion of the brain, averaging four and eight-tenths years.

The treatment in each of these three conditions differs only in degree. As the minimum, three weeks in bed is advised, since long-continued headache and persistent symptoms of considerable severity often result if the patient is allowed to get up too early. For from four to six weeks after this rest in bed the patient should not be allowed to exert himself very much, and during this time various functional methods of treatment may be employed.

BANGE (Z).

Gotch, O. H.: Traumatic Paraplegia: Observations on Cases with Reference to Treatment and Prognosis. *Brit. M. J.*, 1923, i, 849.

The author reports fifty-six cases of traumatic paraplegia sustained in the World War, all uncomplicated by other disease processes. Thirty-nine were of the complete lesion type from the fourth to the tenth dorsal segments, and seventeen of the incomplete lesion type from the eighth dorsal to the fifth lumbar segments. Both the complete and incomplete types may be subdivided into the flaccid or spastic varieties.

Particular attention is called to certain special symptoms of the complete type.

Pain in the lower extremities is often very severe, requiring opiates for its control, and may be accompanied by an elevation of temperature up to 101 degrees F.

Flatulence is common and is occasionally painful. It is associated with ladder-like peristalsis, extreme distention, and the expulsion of gas through the mouth and anus; it may become very toxic and is usually relieved by pituitrin given hypodermatically or by adrenalin given in enemas.

Renal colic is common and sometimes bilateral; a tumor mass is present in the loin and the colic is followed by the passage of blood-stained purulent urine. Autopsy has shown enormously dilated pelvis filled with pus and calculi.

Chronic urogenital sepsis is found in all cases with complete paralysis of micturition. It is evidenced by albuminuria, pyuria, and the presence of renal and vesicular epithelium in the urine. An acute febrile exacerbation may develop suddenly and be followed by pyonephrosis, prostatitis, orchitis, or epididymitis.

Manifestations of uræmia constitute the last stage in these cases. They are of gradual or sudden onset, without renal edema or albuminuric retinitis. On postmortem examination the kidneys are found to be replaced by what resembles an irregular abscess cavity with fibrous walls which is filled with calculi and pus. The ureters are thickened.

Bedsore may be either wet or dry in type and extremely resistant to treatment.

The treatment should include: (1) continued and skillful nursing; (2) daily massage of the paralyzed muscles; (3) the establishment of adequate bladder drainage, preferably by the suprapubic method, the wound being kept open; and (4) the encouragement of mental confidence, mental occupation, and allowing the patient to be up in a wheel-chair as much as possible.

P. R. BILLINGSLEY, M.D.

Fuchs, A.: The Fate of Those Suffering Head Injuries (Die Schicksale der Kopfverletzten). *Wien. med. Wchnschr.*, 1922, lxxii, 2009.

The author bases his article on 5,732 injuries of the head.

One of the most frequent complaints of persons with such injuries is of headache and vertigo. The headache varies from simple neurasthenic pressure

to a decided migraine. The vertigo varies from attacks of true disturbance of equilibrium independent of headache and general disturbances to attacks of decidedly epileptic type. Headache and vertigo are naturally very often associated. The objective symptoms are slight. Differences in the pupils and symptoms of damage to the labyrinths are noted. The difference between the pupils is frequently transitory and disappears with the passing of the headache and attacks of vertigo. Changes in the pulse and the true vomiting of cerebral character are rare. Increased pressure can often be demonstrated roentgenologically. There is no fixed relation between the severity of the original injury to the head and the frequency and intensity of the attacks of migraine and vertigo. Persons with large cranial defects suffer less under such attacks than those with small or no bony defects. The skull is seldom sensitive to percussion, but frequently is sensitive to pressure on the scar.

In the treatment of severe attacks of migraine, lumbar puncture is useless. The treatment can be only symptomatic with emphasis on dietetic and hygienic measures. The loss in efficiency is difficult to estimate. It is especially the morbid fear of vertigo that frequently prevents the resumption of the former occupation.

The author lists various occupations with the complaints of the injured relating to each. The most frequent complaints are of lifting, carrying burdens, bending, heat, climbing ladders, the noise of workshops, a bent-over attitude at work, and uncertainty in steering. The most frequent causes of temporary interruption of work are headaches, vertigo, and convulsions.

Losses of cerebral function of the motor type come under the clinical type of hemi-, mono-, and polyplegia or paresis. As a rule motility is restored more easily in the lower extremities than in the upper, and recovery from a disturbance of the sense of position occurs readily. Persisting spasms always present great difficulties. No more can be accomplished therapeutically than in sensory paralysis. Loss of function of cortical areas does not improve with time. However, injured persons who are intellectual learn to be less disturbed by it.

One of the most distressing complications of injury to the head is traumatic epilepsy. No clear relation can be made out between it and the severity, site, or type of the external injury. It seems, however, that injured persons on whom débridement is performed immediately after the trauma and those who have a large defect suffer from epileptic attacks less often than the others. In favorable cases surgery is successful; in others, the treatment indicated is the administration of bromides and the prohibition of alcohol. Late abscesses developed in only fourteen of the cases reviewed. Psychic disturbances, which were frequent, were evidenced by fluctuating moods, irritability, quick exhaustion, intolerance of heat and alcohol, headaches, and vertigo. Paranoiac conditions were rare.

TAPPEINER (Z).

Dowman, C. E.: *The Treatment of Brain Abscess by the Induction of Protective Adhesions Between the Brain Cortex and the Dura Before the Establishment of Drainage.* *Arch. Surg.*, 1923, vi, 747.

The author suggests that after a brain abscess has been located by exploratory puncture a very small filiform drain be inserted along the needle track down to, but not into, the abscess cavity in order to stimulate the formation of protecting adhesions between the cortex and dura. After a few days the drain should be pushed into the abscess cavity. Later, similar rubber wicks should be added, and within a week or ten days a tube substituted for the rubber-tissue drains. SUMNER L. KOCH, M.D.

Fay, T.: *The Administration of Hypertonic Salt Solutions for the Relief of Intracranial Pressure.* *J. Am. M. Ass.*, 1923, lxxx, 1445.

Hypertonic salt solutions, acting as dehydrating agents, cause the rapid reduction of intracranial tension. The administration of magnesium sulphate solution (1½ oz. of crystals in 8 oz. of water by mouth, or 3 oz. of crystals in 6 oz. of water by rectum) gives marked relief from the symptoms of intracranial pressure and medullary oedema and helps to elicit symptoms otherwise masked by the pressure. The symptoms it relieves include headache, vomiting, choked disk, medullary depression, and coma. Its effects become apparent in about an hour after its rectal administration and somewhat earlier after its oral administration. The dose may be repeated every four hours until the desired dehydration has been obtained. A larger volume than 6 oz. given by rectum may be expelled. The addition of 4 c.cm. of camphorated tincture of opium may help the patient to retain the salt solution. Accumulated fluid may be syphoned off from time to time. The fluid intake should be restricted to the minimum.

The routine administration of magnesium sulphate solution two hours before operation in cases with increased tension is of great value and permits the exposure of the cortex which, in the presence of decided pressure, would be unsafe. It also checks the rapid advance of papilloedema and relieves the coma and respiratory depression in cases of marked intracranial pressure. In postoperative stupor following intracranial exploration, with a marked fall in the respiration and pulse rate, the rapid dehydration checks the pressure on the basal centers and allows the respiration and pulse to return to normal. In cases of traumatic head injuries, in which the pulse and respiration fall below normal, its use is so effective that it renders surgical intervention unnecessary. Rapid dehydration of other fluid collections in the body, such as oedema of the lungs, may also be accomplished.

Thompson has suggested the use of magnesium-sulphate solution in glaucoma. De Schweinitz and Baer have noted an appreciable reduction of intraocular tension following its administration. Ravdin

controlled with it an œdema of the glottis following Ludwig's angina.

The intravenous injection of sodium chloride solution is of value in cases in which rapid reduction of intracranial pressure and volume is necessary on the operating table. The intravenous injection of from 50 to 120 c.cm. of a 15 per cent sodium chloride solution during a period of twenty minutes is an important adjunct in exploratory craniotomy, especially when the dura is tightly distended and ventricular puncture is unsatisfactory or impossible. Although 30 c.cm. of a 35 per cent sodium chloride solution has been used, larger quantities of a 15 per cent solution yield a greater reduction of pressure in a shorter period of time.

Magnesium sulphate is non-dialyzable and produces its effect through rapid dehydration of the blood plasma solely through the intestinal walls with compensatory absorption on the part of the blood from the fluid spaces, especially the ventricular system, to maintain normal blood volume. On the other hand, hypertonic sodium chloride solution is dialyzable and the increased chloride content of the blood leads to a temporary secondary tissue retention with a rapid return of pressure symptoms a few hours after its administration.

WALTER C. BURKET, M.D.

Wollstein, M., and Bartlett, F. H.: Brain Tumors in Young Children: A Clinical and Pathological Study. *Am. J. Dis. Child.*, 1923, xxv, 257.

The results of a study of seven of nine cases of brain tumor found in 4,000 autopsies upon children are reported. Five of the neoplasms were located in the cerebellum and two in the cerebrum. All of the tumors were gliomatous. In the five cases of infratentorial tumor the cerebellar vermis was involved.

In the diagnosis of brain tumor in children there are two problems: first, the growing brain and skull may delay the appearance of objective evidence of increased intracranial pressure, and, second, the patient is not old enough to complain of subjective feelings. The first factor seems to explain the infrequency of vomiting and convulsions in the series of cases reviewed. These presented a secondary hydrocephalus. Examination of the spinal fluid was negative.

LOYAL E. DAVIS, M.D.

Penfield, W. G.: Cranial and Intracranial Endotheliomata. *Surg., Gynec. & Obst.*, 1923, xxxvi, 657.

Dural endotheliomata give evidence of their presence by the development of a typical, slowly growing hard bony tumor on the cranium. Their nature is not entirely understood.

The microscopic picture is that of the so-called endotheliomata of the dura, their nuclei being frequently arranged in whorls. They arise from the arachnoid or inner layer of the dura and displace without infiltrating the brain. They pass through the dura in a number of places, enter the overlying

bone, and cause a complete rearrangement of the osseous structure. In some cases the temporal muscle and scalp may be infiltrated by the neoplasm.

In 420 cases of brain tumor proved at operation or autopsy the condition was associated with a lump on the cranium in ten. These ten cases presented similar pathologic pictures and clinical histories.

The characteristic tumor with stabbing pain beneath it is pathognomonic of the condition. Operative treatment is the only method of dealing with these growths. They should be removed as early as possible. This treatment should give satisfactory results if the operation is survived.

A history of trauma is not always obtained, but the tumors are more common in men than in women, a fact suggesting trauma as a cause.

The author reviews the literature and nine cases of this type of tumor. MARCUS H. HOBART, M.D.

D'Allocco, O.: A Further Report on Cerebral Tumors (Ulteriore contributo sui tumori cerebrali). *Policlin.*, Rome, 1923, xxx, sez. med., 207.

D'Allocco has already published the clinical and anatomopathologic findings in twenty cases of cerebral tumors observed from 1889 to 1902. In this article he gives the histories of ten others. The latter may be divided into two groups, those with a single tumor and those with multiple tumors. The first group included cases of fronto-parietal sarcoma, sarcoma of the left frontal lobe with involvement of the right, a solitary tubercle in the left side of the cerebellum, and a hæmatoma of the dura mater corresponding to the left rolandic area. The second group included cases of tuberculous tumors of the floor of the fourth ventricle and of the right cerebellar hemisphere, multiple disseminated cerebro-dural sarcomata, sarcoma of the right semi-oval center and of the two occipital lobes secondary to a latent suprarenal sarcoma, multiple tuberculous tumors of the motor centers, and tuberculous tumors in the left semi-oval center.

D'Allocco concludes that, even in cases of multiple intracranial tumors, it is sometimes possible to determine the situation of the growths if all the symptoms are studied with regard to their appearance and progressive development.

The treatment of most intracranial tumors is chiefly surgical. Definite recoveries, however, are rare. The treatment of syphilitic tumors remains almost exclusively medical, and such treatment is almost always successful.

W. A. BRENNAN.

Denk, W.: The Value of Pneumoventriculography (Encephalography) in Brain Diagnosis (Die Bedeutung der Pneumoventrikulographie (Encephalographie) fuer die Hirndiagnostik). *Mitt. a. d. Grenzgeb. d. Med. u. Chir.*, 1923, xxxvi 9.

The author reports his experience in the filling of the ventricles of the central nervous system with oxygen in thirty-two cases.

When oxygen is used, air-embolus is prevented with certainty as this gas never causes embolism even when it is given by intravenous injection. Denk employs a small apparatus which is shown in an illustration. For the localization of a brain tumor he recommends direct ventricle puncture in the lateral position, with the face turned to the left so that the right anterior cornu, which is the one punctured as a rule, is lowest down. With local anæsthesia a small hole is drilled 2 cm. to the right of the bregma. Before the injection is made the syringe plunger is drawn back somewhat so that the oxygen will not be injected into the brain substance. The amount of oxygen used varies from 15 to 270 c.cm.

Direct filling of the ventricles causes no reaction worth mentioning, but when lumbar filling is done the patient immediately experiences nausea, vomiting, and headache. Later, whichever method is used, the temperature rises for several days and the patient complains of a dull headache.

Death occurred in two of the author's cases; he had not succeeded in injecting the oxygen. In both of these cases there was a large brain tumor. The deaths are to be attributed, not to the method, but perhaps to a technical error (pressure variations caused by the lumbar puncture). Therefore conservatism is necessary in the use of lumbar puncture.

Ventriculography is not harmless, and is justified only when clinical diagnostic methods do not give an exact diagnosis. Transillumination is not sufficient as a rule. Exposures should be made in four positions. In the occiput position the oxygen rises into the anterior cornua, which then become plainly visible. In the frontal position it rises into the posterior cornua, and in the lateral position into the opposite ventricle.

In communicating hydrocephalus (three cases) the ventricles may be filled from the spinal canal, but the subarachnoid space cannot be filled from either the ventricles or the lumbar canal. In case of unilateral filling of the ventricles the gas must be disseminated evenly by changing the patient's position. In obstructive hydrocephalus the ventricles cannot be filled from the spinal canal and the subarachnoid space cannot be filled by any route. In three of four cases, a tumor compressing the aqueduct or the fourth ventricle was found at autopsy. Whether it is possible by the method described to distinguish tumor-hydrocephalus from the adhesive type is yet to be determined.

In cases of large brain tumor ventriculography gives considerable information. Pressure on the ventricle on the same side causes changes in shape and position. This suggests, but does not prove, the presence of a tumor (exudate, hæmatoma). The shape and degree of deformity vary greatly. The localization of brain tumors will become much more certain through ventriculography and as a result a greater number of such tumors will be removed radically. The author's conclusions are as follows:

1. The method is not without danger.

2. In cases of strong pressure on the brain, lumbar filling is contra-indicated.

3. Obstructive hydrocephalus indicates a tumor in the posterior or median fossa.

4. Large brain tumors cause a change in the shape and position of the lateral ventricles.

5. Conclusions should never be drawn from ventriculography alone; the clinical symptoms also must be considered.

6. Defects in filling should suggest first the possibility of faulty technique. STREISSLER (Z).

Adson, A. W., and Ott, W. O.: Preservation of the Facial Nerve in the Radical Treatment of Parotid Tumors. *Arch. Surg.*, 1923, vi, 739

Complete removal of the parotid gland with the preservation of the facial nerve is indicated in certain cases of tumors of the parotid, especially those that have broken through the capsule or have recurred after local removal. In cases of small encapsulated tumors this procedure is usually not indicated. In cases in which metastasis has taken place in the parotid gland or cervical lymph glands and involves the facial nerve, it is exceedingly difficult to preserve the nerve.

Mixed tumors of the parotid constitute only a small percentage of malignant tumors of the body; in 1,607 patients who were examined at the Mayo Clinic there was only one. The growth of these tumors is slow. As long as they remain encapsulated they are not highly malignant, but when the capsule is ruptured by growth or an incomplete operation, invasion of the surrounding tissue soon takes place and the growth becomes highly malignant. According to Sistrunk, a permanent cure is obtained practically always in early cases by enucleation of the tumor. The importance of complete removal of the parotid gland is emphasized if there is a possibility that the tumor cannot be enucleated completely or if there is any evidence of an extension into the parotid gland. Radium is of some value in the treatment of these tumors, but does not compare in efficacy with surgical treatment.

The technique of the enucleation of small encapsulated tumors has been described by Sistrunk. The authors have found that it is possible to carry the dissection of the temporal and cervical portion of the seventh nerve through the parotid gland and to dissect the nerve away from the gland. An incision is made 2 cm. below the lower body of the mandible and running over the mastoid process, and the inframandibular branch of the seventh nerve is exposed. This is followed upward until the Y of the seventh nerve is exposed. A vertical incision is then made from just below the zygoma, passing down 1 cm. in front of the ear and joining the first incision. Next, the cervical and temporal divisions of the seventh nerve are dissected through the lower lobe of the parotid gland; the facial nerve penetrates the lower lobe of the parotid for a distance of only about 2 cm., and then lies underneath the parotid on the muscles of the face. The dissection is next carried

forward sufficiently to elevate all of the parotid, and when this is completed, Stenson's duct is ligated and divided and the parotid gland is removed from the skin. If the skin is involved, the area may be removed with the malignant mass. The deep lobe of the parotid, which lies posterior and mesial to the ramus of the mandible, is removed by gently elevating the facial nerve outward and dissecting out the parotid gland which lies mesial to it. The exposure obtained by this procedure facilitates complete removal of all parotid tissue with any involved skin without severing or injuring the facial nerve.

The facial nerve should be sacrificed only if metastasis and necrosis have become so extensive that it is impossible to demonstrate the lines of cleavage.

Byrnes, C. M.: An Examination of the Spinal Accessory Nerves from a Case of Bilateral Acquired Spasmodic Torticollis. *Bull. Johns Hopkins Hosp.*, Balt., 1923, xxxiv, 125.

The author reports a case of bilateral acquired spasmodic torticollis. The spasm was retrocollic and there was a rhythmical variation in the size of the neck which reached its maximum at noon each day. Two unidentified posterior cervical nerves, both spinal accessory nerves, and the sternomastoid, the trapezius, the splenius capitis, and the semispinalis muscles of both sides were sectioned.

Studies were made of all the muscles and accessory nerves. Cross-sections of the left spinal accessory nerve stained with hæmalum and acid fuchsin showed many faintly colored, swollen axis cylinders of irregular outline with few healthy appearing axones and without proliferation of any other elements.

Longitudinal sections showed fragmentation and swelling of the axones with a slight increase in the neurilemma nuclei. The Weigert stain showed complete absence of myelin. The right nerve was more nearly normal. The muscle preparations showed a variation in the size and shape of the cells. Some were atrophic and others hypertrophic with longitudinal cleavage. In the splenius capitis many cells were dumbbell shaped, vacuolated, and undergoing general disintegration. P. R. BILLINGSLEY, M.D.

SPINAL CORD AND ITS COVERINGS

Elsberg, C. A.: The Early Symptoms and the Diagnosis of Tumors of the Spinal Cord, With Remarks on the Surgical Treatment. *Am. J. M. Sc.*, 1923, clxv, 719.

One of the most common early symptoms of spinal cord tumors is neuralgic pain due to irritation of the posterior roots. Instead of this neuralgic pain, many patients first complain of persistent pain in the back of the neck or in the thoracic spine. Usually this is well localized and does not radiate until late in the course of the disease. Pain in the lumbar area which radiates down the backs of the legs is a common symptom of tumors of the lumbosacral segments of the cord or of the cauda equina. While spinal cord tumors may develop without pain, such tumors are usually small

and develop from the pia or arachnoid on the anterior, antero-lateral, or postero-lateral surface of the cord between the nerve roots. In cases of extramedullary and extradural growths total absence of a sensory disturbance is rare, but in cases of intramedullary growths this type of disturbance is common.

Spinal cord tumors are classified as posterior when they lie behind the posterior roots; as postero-lateral, when they lie between the posterior roots and the dentate ligament; as antero-lateral, when they lie between the anterior roots and the dentate ligament; and as anterior, when they lie in front of the anterior roots. Posterior tumors are characterized by root pains and marked disturbances of muscle and joint sensation. Postero-lateral growths usually cause severe root pains and commonly a Brown-Séquard syndrome. Growths upon the antero-lateral aspect of the cord frequently have a painless beginning with tingling in one or both lower limbs and late sensory disturbances. Anterior tumors frequently cause tingling in one or both lower extremities and late sensory disturbances.

The author believes that there is an arrangement of fibers within the various tracts of the cord which corresponds to the extremities and their various parts. Therefore, every possible means should be used to localize a spinal cord tumor most accurately.

LOYAL E. DAVIS, M.D.

PERIPHERAL NERVES

Dieterich: The End-Results of Nerve Suture in Gunshot Wounds of the War of 1914-1918 (Enderfolge von Nerven-naechten nach Schussverletzungen aus dem Kriege 1914-1918). *Med. Klin.*, 1923, xix, 237.

Among 7,000 cases of war wounds there were forty-six cases of nerve injuries in which the severed nerve was sutured. The results have been very unsatisfactory. In only seven (15.7 per cent) has there been total restitution of conduction, and in only three (6.5 per cent) slight improvement. Good results were obtained only in cases of injury of the radial nerve. In two cases of median nerve injury and in one case of injury of the peroneal nerve there was improvement. In one case the radial nerve was split to bridge the defect; a good result was obtained.

One reason for failure is poor healing. Another factor of importance is the length of time that elapsed after the injury before the suturing was done. The successful sutures of the radial nerve were done from one and one-half to nine months after the injury, and those which were unsuccessful were done from three and one-half to twelve months afterward. The suturing of the median nerve which was followed by improvement was done from one to two months after the injury and the unsuccessful suturing after from two and one-half to thirteen months. The level of the nerve injury is also of influence on the result. The best results were obtained in cases of injury in the middle of the nerve.

TROMP (Z).

SYMPATHETIC NERVES

Wojciechowski, A.: Peri-Arterial Sympathectomy
(Periarterielle Sympathicotomie). *Polska gaz. lek.*,
1922, i, 820.

After a brief review of the literature the author reports the experiments in peri-arterial sympathectomy which he performed on the femoral artery of rabbits. After seven, fourteen, twenty-one, thirty, forty, fifty, and seventy-five days the part of the vessel operated upon was removed and examined under the microscope. The microscopic examination is rather difficult and very frequently leads to incorrect conclusions.

No signs of degeneration were found in the lower portion of the vessel, but growth of the nerve fibers from the upper and lower edges of the defect, particularly the former, was noted. Union of the nerve fibers was not observed.

While the author believes the complete removal of the sympathetic plexus is impossible, a distinct dilatation of the vessel occurs below the area of operation. Even as early as the evening of the day of operation the limb operated upon is warmer than the other. This condition continues for only a few

days; at the end of a week the difference in temperature disappears. A second operation shows, however, that dilatation of the artery and a stronger circulation persist for three or four weeks. In the course of the second month, these differences disappear completely.

JURASZ (Z).

Matheis, H.: Peri-Arterial Sympathectomy in Arteriosclerotic Gangrene (Zur periarteriellen Sympathektomie bei arteriosklerotischer Gangraen). *Zentralbl. f. Chir.*, 1923, I, 309.

This article is a report of two cases of arteriosclerotic gangrene in which peri-arterial sympathectomy was performed on the upper third of the femoral artery. In both, the course of the condition was at first favorably influenced, but after a short time (six and two weeks) amputation became necessary because of œdema and advance of the gangrene.

Matheis seeks the cause of this remission and the postoperative œdema in damage to the small vessels. He believes that after the sympathectomy these vessels became greatly dilated and allowed the passage of fluid through their walls. Trophic disturbances and susceptibility to infection then resulted.

RIEDER (Z).

SURGERY OF THE CHEST

TRACHEA, LUNGS, AND PLEURA

Halahan, R.: Hydatid Cysts of the Lungs and Pleura. *Surg., Gynec. & Obst.*, 1923, xxxvi, 354.

Hydatid cysts of the lungs are next in frequency to those of the liver and may cause severe symptoms and lead to complications and errors in diagnosis. They produce symptoms in the lungs early—hæmoptysis and a hacking cough which, in the early stages, is not associated with expectoration. In the lung there is slight development of the ectocyst. Hence rupture into the pleura or a bronchus or both is common. Rupture into a bronchus causes violent fits of coughing, cyanosis, severe dyspnoea, hæmoptysis, and a greater or less amount of watery expectoration containing bits of membrane and daughter cysts. Hooklets may be found on microscopic examination. On rupture, the cyst may become infected secondarily if it is not already infected. This produces purulent sputum, hectic fever, great wasting, and debility. The patient's appearance suggests advanced tuberculosis. Rupture into the pleura simulates pleural effusion or empyema. A large unruptured cyst at the base of the lung may simulate pleural effusion.

A typical case is that of an otherwise healthy person with a dry hacking cough with scanty or no sputum. Repeated examination fails to demonstrate tubercle bacilli, and hæmoptysis suggests hydatid pulmonary disease, especially in a country where hydatids occur. An eosinophilia and a positive serum diagnostic test of Ymaz, Apathie, or Ghedine are additional evidence. When the cyst becomes larger it is seen in the roentgenogram as a round shadow and causes a decrease in the breath sounds or their absence. It may be necessary to delay the diagnosis until there are physical signs. An exploratory puncture which gives clear watery fluid confirms the nature and position of the disease. Puncture should be done only when the patient is prepared for operation. Leakage of the cyst contents may cause toxic symptoms in some cases, and occasionally simple puncture of the cyst has been followed by infection and death.

Although spontaneous recovery sometimes takes place, the author considers that surgical treatment offers the best chance of a cure when the diagnosis is established. The cyst should be approached from the nearest accessible surface point. One or more ribs may be resected if necessary. The author holds the lung against the wound in the chest wall by means of a catgut ligature passed with a large curved needle through the intercostal muscle and the lung tissue. He then verifies the position of the cyst again with the exploratory syringe. Usually the endocyst is easily removed. The ectocyst is so

delicate that the remaining cavity resembles normal pleura. In the author's opinion, the pneumothorax associated with wide opening of the pleura is not dangerous. The cut margin of the lung is firmly sutured to the margin of the wound to control hæmorrhage. It is sometimes difficult to find a cyst again when the lung has collapsed within the chest. Opening the chest may be associated with severe coughing which causes alarming cyanosis. Usually this cyanosis clears up and the cough gradually abates, ceasing within a week.

The subsequent treatment consists in maintaining good drainage, giving a nourishing diet, getting the patient up early, giving deep-breathing and other moderate exercise, and keeping the patient in the fresh air and sunshine. **WALTER C. BURKET, M.D.**

HEART AND PERICARDIUM

Weller, C. V.: Unusual Cardiac and Cerebral Metastases in Melanosarcoma. *J. Cancer Research*, 1922, vii, 313.

In a case of diffuse melanotic sarcomatosis in which death occurred after mechanical injury of, and operation upon, a pigmented mole, autopsy revealed in the brain a solitary metastasis in the floor of the fourth ventricle, numerous older cortical and subcortical metastases, and a diffuse meningeal sarcomatosis, none of which had influenced the clinical picture sufficiently to call attention to their presence. The meningeal involvement was exactly like that of certain cases reported as primary meningeal melanosarcoma, and throws further doubt upon the possibility of such origin. There were also very numerous myocardial and endocardial metastases which had caused a clinically evident relative aortic insufficiency.

EMIL C. ROBITSHEK, M.D.

Coffey, W. B., and Brown, P. K.: The Surgical Treatment of Angina Pectoris. *Arch. Int. Med.*, 1923, xxxi, 200.

In 1899, Franck first suggested resection of the cervical sympathetic trunk for the relief of the pain of angina pectoris. Jonnesco, in 1920, was the first to perform such an operation, basing his argument for the procedure upon the fact that in angina there is always a chronic aortitis which irritates the endings of the cardio-aortic plexus and that if the reflexes produced by irritation of the cardio-aortic plexus were interrupted, their alarming symptoms would be stopped. Franck described the routes by which such afferent impulses reach the medullary and cerebral centers, but recent investigators have been unable to demonstrate any afferent fibers even as far cephalad as the superior cervical ganglion.

The authors report five cases in which resection of the left cervical sympathetic trunk was done. Definite improvement resulted in four, but one patient died. Such a procedure, of course, causes enophthalmos, narrowing of the palpebral fissure, and constriction of the pupil on the side operated upon.

The reader is referred to Jonnesco's original article for a complete description of the operation. The indications for it have now been extended to include glaucoma, exophthalmic goiter, epilepsy, and trigeminal neuralgia.

LOYAL E. DAVIS, M.D.

ŒSOPHAGUS AND MEDIASTINUM

Parsons, J. P.: Enlarged Thymus—Clinical Findings in a Series of Cases. *Med. Clin. N. Am.*, 1923, vi, 1319.

The author believes thymic conditions are not rare and that if these cases could be routinely discovered the death rate in pneumonia and other severe infections would be materially reduced, especially among children. The X-ray is a valuable aid in the diagnosis of enlarged thymus but is not infallible, as a long, narrow, thick thymus will not cast a shadow greater than that normally cast by the sternum and the great vessels and mediastinal glands; moreover, a chest picture taken when the diaphragm is contracted and the heart is in systole shows a thymic shadow at its widest.

Of a series of cases of enlarged thymus cited, seven were those of infants ranging from $3\frac{1}{2}$ to 6 months of age, and one was that of a girl 5 years old. In seven of these cases the condition was revealed by the X-ray.

A review of these eight cases demonstrates that a baby born with an enlarged thymus may show only very mild thymic symptoms until he acquires a severe infection or has had several colds; that such babies are subject to colds and infections; that thymic symptoms may not be noticed at all until after several colds; and that repeated infections in an infant with an only moderately enlarged thymus may cause grave disturbances. The infants whose cases are cited suffered from choking, "croup," cyanosis, coughing spells, or "asthma," and were relieved quickly by X-ray treatment of the thymus—one treatment a week for four successive weeks. Improvement is usually noticed after the first treatment, and control X-ray pictures show a decrease in the size of the thymus. Sometimes the X-ray treatment is given as an emergency measure.

The condition must be differentiated from whooping cough, pneumonia, foreign body, croup, and asthma.

The author cites two cases of enlarged thymus which resulted fatally when they were treated with diphtheria antitoxin. In one case a chest plate failed to show the enlarged thymus which was found at autopsy. The other case was not examined with the X-ray. Death was not sudden in either instance.

In conclusion the author states that a "thymic build" is recognized. This is characterized by a short neck, chubbiness, and a thick panniculus. Enlarged thymus may be found also, however, in slim children.

FRANCIS H. DOUBLER, M.D.

Hubert, L.: The Enlarged Thymus Gland from the Viewpoint of the Laryngologist. *N. York M. J. & Med. Rec.*, 1923, cxvii, 410.

Two groups of cases belonging to the status thymicolymphaticus type are described. The first are those in which the enlarged thymus is the most important and prominent feature, and dyspnoea, especially at night, is the most outstanding symptom. This condition will be suspected from the history and the nature of the dyspnoea. Verification is obtained by the X-ray.

In the second group, called simply "status lymphaticus" or "status hypoplasticus," are the cases with little or no enlargement of the thymus gland, but with hyperplasia of the lymphoid tissue and hypoplasia of the more important parts of the body, such as the heart, the aorta, and some of the glands of internal secretion, especially the adrenals, the pituitary, the genital glands, and the thyroid. These cases are characterized by nasal obstruction and general weakness. It has been suggested that these cases might be demonstrated by the orthodiagraphic method, viz., the determination of the ratio between the heart and lung shadows in the X-ray picture. The normal ratio is 1:2.

O. M. ROTT, M.D.

Helsley, G. F.: The Metastasizing Tendency of Œsophagus Carcinoma. *Ann. Surg.*, 1923, lxxvii, 272.

In his review of the literature on the tendency of carcinoma of the œsophagus to form early metastases, Helsley found considerable diversity of opinion. Forster and Billroth, Sauerbruch, Guisez, and Meyer are of the belief that early metastases do not occur. Ewing, on the other hand, states that these tumors soon form extensive metastases. Petri, Zenker, and Colle report metastases in 59.5, 60, and 62.2 per cent of their cases respectively.

A comparison of the figures quoted by Kraus with corresponding figures for carcinoma of the stomach indicates that œsophageal carcinoma is not particularly prone to metastasize. Konjetsay says that only about 15 per cent of persons dying of carcinoma ventriculi are free from metastases. In an extensive study of œsophageal carcinomata Kitain found that 68.5 per cent showed metastases, but if local metastases in the adjacent lymph nodes are excluded, the figure was 46.4 per cent. Of a series of cases of carcinoma of the stomach, 82.1 per cent showed metastases, but if cases having regional lymph-node metastases are omitted, the figure is 71.4 per cent. Other figures seem to bear out these findings. In seventy-five cases of carcinoma of the œsophagus, Sebening found 72 per cent free from organic metastases.

Helsley's study is based on seventy fatal cases of carcinoma of the œsophagus which, according to the pathologic picture, may be divided into the following groups:

1. Cases without metastases.
2. Cases with metastases in the regional lymph nodes, the œsophagus, the retro-œsophageal lymph nodes and adjacent nodes in the posterior mediastinum, and nodes around the cardia.
3. Cases with metastases in the more distant lymph nodes or in other organs.

Group 1 included forty-five cases, 64 per cent of the total number. Group 2 had four cases, 6 per cent of the total number. Therefore 70 per cent of the cases included in this report were free from distant or organic metastases, a fact seeming to indicate that even up to the termination of life œsophageal carcinoma shows a rather limited metastasizing tendency.

In fifty-nine cases, the duration of the symptoms averaged five and two-tenths months. In two cases there was never any manifestation of the condition. In thirty-nine cases without metastases the average duration of symptoms was four and eighty-four hundredths months. In two cases symptoms had been present for one year or longer, and in ten, for six months or longer.

There were forty-two gastrostomies. Twenty-eight of the patients subjected to this operation lived less than twenty days after the operation, an average of five and three-quarters days, while fourteen lived more than twenty days, an average of seventy-four and three-quarters days.

McMICKEN HANCHETT, M.D.

Miller, R. T., Jr., and Andrus, W. D. W.: Experimental Surgery of the Thoracic Œsophagus.
Bull. Johns Hopkins Hosp., Balt., 1923, xxxiv, 109.

The control of respiratory pressure has greatly increased the experimental work done on the surgery of the thorax, especially the œsophagus.

In the treatment of carcinoma of the œsophagus the extrathoracic procedure is associated with high risks and little chance of restoring the tube, while the intrathoracic method is surgically more simple and more apt to be followed by good functional results. The authors have devised an intrathoracic method.

The first part of the article deals with a review of the intrathoracic suture up to 1922, the work of Dobromyslow, Sauerbruch, Willy Meyer, Zaaijer,

Janeway and Green, Omi, and many others. The chief difficulty in most of this work was that the sutures tore out and if the resection was at all extensive the tension was too great. To overcome the former difficulty, certain experimenters used the Murphy button, and to overcome the latter, the stomach or the small intestine was drawn up into the thorax and sutured to the œsophagus.

In the method devised by the authors the stomach is mobilized, drawn up into the chest through the diaphragm, and sutured to the œsophagus by an end-to-end bulkhead suture of Halstead. Anæsthesia is induced with ether. The approach is made through the eighth intercostal space on the left side. The cardia is separated from the diaphragm and the vessels are carefully ligated. The vagi may be sectioned. The fundus of the stomach is readily drawn through the diaphragm, and the entire stomach may be drawn into the chest, with or without the spleen. The œsophagus is divided at the cardia and the cardiac stump inverted. The site of implantation is on the anterior wall of the stomach, well up on the fundus, to the left of the cardia. Hæmostasis is carefully watched. The stomach and the œsophagus are brought into apposition by mattress sutures of fine silk, a firm hold on the submucosa being obtained with the first row of stitches. The second suture layer, which is of fine silk, includes only the muscle layers. The edge of the diaphragm is then sutured to the stomach.

The method described is well illustrated with pictures. The chief object of the technique is to prevent tension, which is done by the mobilization of the stomach.

Eleven times out of eighteen the œsophageal sutures held and satisfactory healing with an intact functioning anastomosis resulted. The possible complications include hæmorrhage, shock, dilatation of the stomach, diaphragmatic hernia, and infection. Dilatation of the stomach and diaphragmatic hernia can be prevented by carefully sewing the diaphragm to the stomach. The dilatation is probably not due to section of the vagi, but more experimental work is necessary along this line. Omi reported that he had completely excised the diaphragm in animals without causing marked sequelæ, and that he had observed a Turkish soldier in the first Balkan war who lived an active military life for a number of years with a rather complete diaphragmatic hernia caused by a gunshot wound.

JOHN L. BUTSCH, M.D.

SURGERY OF THE ABDOMEN

ABDOMINAL WALL AND PERITONEUM

Finkelstein, H., and Rohr, F.: *The Treatment of Tuberculosis of the Peritoneum in Children.* (Die Behandlung der tuberkuloesen Bauchfellerkrankungen im Kindesalter). *Samml. zwangl. Abhandl. a. d. Verdauungs- und Stoffwechs.-Krankh.*, 1922, viii, 1.

Tuberculosis of the peritoneum is more frequent in children than in adults. On the other hand, very young children are seldom attacked by the form in which peritonitis is found alone or predominates. Of seventy-nine cases treated in a children's hospital only seven were those of children under 2 years old. It has not been proved that one sex has a greater predisposition than the other. A hereditary taint was suggested in only twenty-seven cases.

The disease picture varies exceedingly. Thirty-four per cent of the children complained of abdominal pain. This, however, is not to be taken as an early symptom for as a rule it does not appear until after the parents have noticed changes in the child (pallor, peevishness, emaciation, disinclination to play). A sensation of fullness in the abdomen, occasional vomiting, and remittent fever are symptoms which may be more or less marked. The findings on palpation, rectal examination, and examination of the stools (tubercle bacilli are rarely found) do not afford the basis for a certain diagnosis. The condition most easily recognized is exudative tuberculous peritonitis. The second form, adhesive tuberculous peritonitis, is divided into the purely adhesive form, in which usually the abdomen protrudes and is markedly tense, and the nodular adhesive form in which round tubercles varying in size from that of a walnut to that of an apple can be felt and there is resistance between the navel and ensiform cartilage. The third form is ulcerous tuberculous peritonitis. From the surgical standpoint the seropurulent may be distinguished from the suppurative caseous form.

The prognosis is most favorable in the exudative form. Under various methods of treatment, with good care and nourishment and an extended period of life in the open air, the prospects of cure are good. Extensive effusions should be evacuated by puncture.

In the adhesive forms the systematic application of natural or artificial Alpine sun-rays aided by good food and care and fresh air represents a great advance in the treatment. At night, as in the exudative form, hot fomentations may be indicated. Roentgen treatment is important chiefly when the disease is circumscribed (caecal tuberculosis, infiltration of the omentum). The longer the disease has been present and the greater the induration,

caseation, or calcification, the less benefit is derived from radiation. When elevations of temperature have ceased, treatment for absorption is indicated. The author has had no experience with fibrolysin injections.

Laparotomy is indicated only in particular conditions (hot abscesses, ileus), as it can do no more than conservative therapy and presents dangers and disadvantages (frequent scar herniæ). In all cases rest in bed for two weeks until the exudate has become resorbed and the temperature has fallen to normal is imperative. Intestinal tuberculosis and the ulcerous form of tuberculous peritonitis are intractable to treatment; even radiotherapy is useless and may be prejudicial (pain, weakening).

STETTNER (Z).

Matz, F.: *An Unusual Tumor of the Omentum: Actinomycoma* (Eine seltene Netzeschwulst: Aktinomykom). *Deutsche Ztschr. f. Chir.*, 1922, clxxvi, 217.

A somewhat movable, not painful tumor, the size of a fist, was found under the left costal arch of a markedly emaciated, anæmic man 24 years old. The growth extended to the left kidney region. Laparotomy revealed a moderate amount of bloody exudate and a hard tumor larger than two fists below the transverse colon and somewhat medial to the splenic flexure. The growth covered half the circumference of the transverse colon and in its vicinity the wall of the colon showed oedema.

When the tumor was separated from the colon a white, dense, and hard tissue slightly infiltrated by pus and granulations was found. The pus showed isolated yellow granules which, without doubt, were actinomycotic glands. Actinomycosis was demonstrated also microscopically. The point of origin was probably actinomycotic involvement of the transverse colon. The postoperative course was good. The postoperative treatment consisted of the administration of large doses of sodium iodide (up to 10 gm. daily) and deep roentgen irradiation.

KONJETZNY (Z).

Hesse, E.: *The Surgical Pathology of the Transverse Mesocolon, with Particular Consideration of Traumatic Fissures* (Zur chirurgischen Pathologie des Mesocolon transversum, unter besonderer Berücksichtigung der traumatischen Spaltbildung). *Beitr. z. klin. Chir.*, 1923, cxxviii, 461.

The author reports a case in which the mesocolon was only 1 to 1½ cm. long and made it impossible to pull the transverse intestine forward to perform a posterior gastro-enterostomy.

Fissures of the transverse mesocolon, particularly traumatic fissures, are extremely rare. Two cases

are reported in which a severe injury of the abdomen from a fall was followed by increasing pain. The possibility that a portion of intestine may have become incarcerated in a fissure cannot be denied. The two cases came to operation because of gastric and duodenal ulcer, but it cannot be assumed that there was any relationship between the traumatic fissure of the mesocolon and the ulcer because in one case the ulcer was present previously and in the other the symptoms did not appear until three years after the injury.

A more common condition is a secondary inflammatory change in the mesocolon in the form of flat, white cicatricial areas. These are noted particularly in cases of gastric and duodenal ulcer and diseases of the colon and pancreas. BODE (Z).

Lesniowski, A.: Cicatrization of the Mesosigmoid (Narbenbildung im Mesosigma). *Polska gaz. lek.*, 1923, ii, 20.

On the basis of a clinical observation and 137 autopsies, the author concludes that cicatrization in the mesosigmoid is a relatively frequent condition which begins in the fifteenth year of life, frequently becomes more extensive, and causes clinical symptoms at about the thirtieth year of life. The beginning and the end of the sigmoid are narrowed by cicatricial shrinkage, this giving rise to kinking which causes the clinical symptoms of ileus.

Clinically, the condition can be demonstrated by roentgen-ray examination. The contrast meal is retained for an abnormally long time before and within the sigmoid flexure, and when a barium enema is given the ampulla first becomes greatly dilated and the contracted transition-passage into the sigmoid is manifested by a contrasting streak. The sigmoid flexure itself is usually enlarged and has a circular form which, with the afferent and efferent loops, presents the shape of the Greek letter omega. At operation, this shape is particularly distinct. The cicatrization between the ends of the sigmoid is easily recognizable. As a rule it occurs in only the lateral side of the mesosigmoid, but sometimes involves the medial side. In most cases it is limited to the peritoneum and does not affect the fatty tissue between the peritoneal leaves or the vessels.

The operation which the author proposes consists in simple section of the cicatricial tissue, separation of the ends of the sigmoid to a distance of 4 to 6 cm., and covering of the defect thus formed in the peritoneum by means of freely transplanted omentum. A case operated upon in this manner was still without symptoms two years later.

JURASZ (Z).

GASTRO-INTESTINAL TRACT

Lim, R. K. S.: The Question of a Gastric Hormone. *Quart. J. Exper. Physiol.*, 1922, xiii, 79.

Histamine causes gastric secretion when injected intravenously, contrary to the observations of

Popielski and others who obtained secretion only when they injected it subcutaneously or intramuscularly.

Adrenalin does not inhibit the secretion provoked by the histamine, but may delay its outflow from the stomach. In some persons adrenalin excites secretion.

There is no gastric exciting substance in the circulation after meals. The "gastrin" of Edkins must be regarded as an extraction product rather than an internal secretion. The distribution of the gastrin or gastric excitant in the stomach and duodenum corresponds to the distribution of mucoid glands. It is suggested that the excitant is extracted from mucoid cells.

The blood of fed animals has no apparent effect on gastric secretions when transfused directly or indirectly.

Since there is no gastric exciting substance in the blood after meals, the excitant found in pyloric and other extracts is not secreted into the blood stream and the mechanism of secretagogue action is not due to internal secretion. The question of gastric secretagogue secretion therefore remains unsolved. SAMUEL KAHN, M.D.

McVicar, C. S.: Diagnosis in the Chronic Dyspepsias. *Canadian Pract.*, 1923, xlviii, 137.

The development of the syndromes of the chronic dyspepsias has been long and tedious, and has depended largely on the correlation of a thorough history and physical examination with operative findings and results. Chemical examination of the gastric contents, roentgenology, examination of excised tissue at operation, and autopsy have all been factors in this development. The happiest results in diagnosis have been obtained best by a conservative and tolerant employment of all available methods. By these means the grouping of phenomena into syndromes has become clarified and now stands out in more definite relief.

The syndromes of peptic ulcer (simple and complicated), gastric carcinoma, cholecystitis, cholelithiasis, chronic appendicitis, the functional dyspepsias, and migraine are outlined in some detail.

Uncomplicated peptic ulcer, the purest clinical syndrome, is characterized by periodical seasonal attacks of epigastric distress at regular times which are eased by food, soda, emesis, and rest. The symptoms usually progress with increasing severity, shorter periods of freedom, and the development of night pain. Differentiation between gastric and duodenal ulcer is difficult clinically, and is a function of the roentgenological laboratory. Gastric ulcers are frequently atypical. A number of perforative ulcers cause pain suggestive of gall-stone disease. Complicated ulcers lose type. The distress becomes more or less continuous, food may add to the discomfort, alkalies become less efficient, vomiting is often induced, and the stomach tube is commonly used for relief. The stomach often decompensates from obstruction.

In gastric carcinoma a history which simulates that of ulcer is obtainable in about 34 per cent of the cases. In this group the old dyspepsia takes on a new character. In the remainder an alarming digestive distress develops suddenly. Persons with cancer appear ill and have an apprehensive docile attitude, a waxy pallor of the skin, marked loss of weight and strength, anorexia, and epigastric distress which persist and progress in spite of usual remedies. The finding of rancid food remnants and altered blood points to stasis and chronic ulceration.

The roentgen ray gives added accuracy in diagnosis and localizes the lesions. With the aid of roentgenograms, it is possible also to estimate with a high degree of accuracy the operability of malignant gastric disease.

Persons with cholecystitis complain of gas shortly after meals and intolerance for fats, sour foods, and coarse vegetables. The distress is intermittent, and may be accompanied by transient right hypochondriac tenderness. In cholelithiasis, there are, in addition, attacks of colic of sudden onset and sudden cessation. The pain may be referred to any direction.

The dyspepsia of chronic appendicitis is the least clear cut. The diagnosis depends on the development of a history of acute attacks with tenderness in the right lower quadrant and a dyspepsia irregular in character and relief.

There is no adequate classification of the functional dyspepsias. Their diagnosis depends on the exclusion of organic disease together with the deportment of the patient, the variability of the details of the history, the degree of distress from day to day, and the presence of domestic, social or business disharmony. Migraine must be eliminated by its characteristic history.

In the Mayo Clinic the gastric and roentgenological laboratory procedures are co-ordinated and have for their purpose the estimation of gastric motor function, secretory activity, the discovery of departures from the normal in the luminal contour and motility of the stomach and duodenum, and the localization of the lesion.

In all the dyspepsias pain is commonly felt in the epigastrium, but the severity, duration, type, time of occurrence, method of relief and association of symptoms give valuable information in the differential diagnosis. Jaundice has a limited value in the differentiation of the dyspepsias. The position of tenderness is insecure evidence of the location of a lesion, but is most important when present over McBurney's point. Epigastric tumors associated with gastric distress are usually malignant. Hæmatemesis is an important symptom when it is associated with other gastric symptoms. The possibility of an associated hæmophilia or purpura must be considered. Hæmatemesis occurs in about 23 per cent of cases of gastric ulcer, 12.5 per cent of cases of duodenal ulcer, from 2 to 4 per cent of cases of disease of the gall-bladder, and in from 1 to 2 per cent of cases of chronic and subacute appendicitis.

A few cases of hæmatemesis have been observed in which the source could not be determined.

Oetvoes, E.: The Diagnostic Value of the Atropine Test in Pyloric Conditions (Ueber den diagnostischen Wert der Atropinprobe des Pylorus). *Roentgenologia*, 1922, i, 81.

There are numerous cases of gastric and duodenal ulcer in which neither direct nor indirect symptoms of ulcer are observed. These are generally treated as gastric neuroses, simple hyperacidity.

Up to the present time it has not been possible to establish roentgenologically the causes of the adhesion of the gall-bladder to the pylorus or the duodenum.

Oetvoes attempted to solve these two diagnostic problems by means of his atropine test. He reasoned as follows:

If the pericholecystic adhesions are caused by gall-stones, only the peritoneal coat of the duodenum would be involved, but if they are caused by a duodenal ulcer, there would be extensive anatomical changes in the entire thickness of the intestinal wall and these would involve the ganglion cells of the plexus of Auerbach in the wall of the intestine. The condition of the ganglion cells can be tested with atropine.

In cases of ulcer the pylorus is predisposed to spasm. The atropine will close the pylorus in cases of ulcer but not in health.

If the roentgen-ray examination shows adhesions, the atropine test may explain the cause of these adhesions. Lack of motility of the stomach for four hours after atropine indicates a callous ulcer, whereas a negative test points more toward cholecystitis.

The exceptions to this rule are cases of gastric atony, ptosis, gastric erosions, recent shallow ulcers, and extensive changes in the biliary ducts. In such cases the test is not conclusive.

The author tested 260 patients in this way and gives five characteristic histories. On his representation, atropine sulphate is not a suitable means by which to relieve pyloric spasm, as in certain instances it can itself produce such spasm. He concludes that the positive atropine test is the result of stimulation of the ganglion cells of Auerbach by the atropine sulphate independent of its chemical reaction on the gastric juice. The positive test is generally characteristic of organic disease, particularly old, callous gastric or duodenal ulcer.

In pericholecystic adhesions without marked changes in the biliary ducts the test is negative.

VON LOBMAYER (Z).

Heile, B.: The Surgery of Pylorospasm in Nursing Infants (Zur Operation des Pylorospasmus der Säuglinge). *Zentralbl. f. Chir.*, 1923, 1, 162.

Grooving of the pyloric tumor by Rammstedt's method without opening the mucous membrane and without suture is the simplest and best operative procedure in the pylorospasm of infants. Care is necessary, however, to keep the duodenum away

from the tumor mass as it can be easily damaged. The process of grooving is therefore begun in the middle of the tumor, extended step by step toward both sides, and discontinued when the submucosa is reached.

The sharp incision which Rammstedt uses does not always release the pylorus sufficiently as there is an increase of connective tissue between the muscle bundles. It must therefore be supplemented by dissection of the tumor with a dull blade. This blunt dissection prevents hæmorrhage as well as perforation and gives immediate results when the operation is performed early before the occurrence of dilatation of the stomach with hypertrophy of the muscle walls. By roentgen-ray examination the diagnosis of pylorospasm is easily established.

In twenty-seven cases operated on by the author there was only one death, that of an infant coming to operation late. Rammstedt has operated upon fifteen cases with no deaths. These favorable results were due to the fact that operation was performed early whenever possible and subsequent treatment was given by a competent pediatrician.

TROMP (Z).

Bass, M. H.: Atropine in the Treatment of Congenital Pyloric Stenosis. *Med. Clin. N. Am.*, 1922, vi, 579.

This report records several cases of congenital pyloric stenosis treated with large doses of atropine as first advocated by Haas. While atropine or belladonna had previously been given in these cases, it had never been given in the dosage recommended by Haas, who showed that even newborn infants will tolerate doses previously considered toxic.

Having decided on this form of treatment it is necessary to reach the minimum effective dose as rapidly as possible, observing the effect after each feeding rather than from day to day. It is advisable to give 1 drop of the 1:1,000 solution of atropine sulphate in water with each feeding. If the vomiting is not controlled, an additional drop may be given with the next feeding. As much as 72 drops or $\frac{1}{13}$ gr. has been given in twenty-four hours.

In the more severe types, hypodermic administration has two advantages: first, one knows just how much atropine the child retains; second, one knows that the entire dosage offered is available to the child. With regard to the patient's tolerance one is guided mainly by the flushing of the skin. If this becomes marked soon after the hypodermic injection, the dosage may be considered sufficient or excessive.

In cases recovering, the atropine is discontinued gradually. Atropine alone will not necessarily cure pyloric stenosis, but it is useful in controlling the spasm which prevents the food from passing out of the stomach. It may be considered the most important part of the medical treatment, but the many details of warmth, feeding, fluid intake, and hygiene must be looked after with the utmost care.

Judging from his own experience, the author concludes that every case of pyloric stenosis should be given the benefit of a thorough course of atropine as detailed. It is possible that in certain cases surgical intervention may be necessary, but these are few and in the majority brilliant results will be obtained if the treatment is conscientiously carried out.

Four illustrative case reports are appended:

1. A case of pyloric stenosis with severe symptoms due to loss of fluid. Prompt recovery resulted under treatment with atropine and the subcutaneous introduction of fluid.

2. A typical case of pyloric stenosis with visible peristaltic waves and a palpable tumor. Atropine was administered usually by mouth every three hours. After large doses were begun the gain in weight was rapid—27 oz. in twenty-four days. The treatment was interrupted by whooping cough.

3. A severe case of pyloric stenosis in a breast-fed infant showing visible peristalsis and a palpable abdominal tumor. Large doses of atropine were necessary. The weight increased during the first month of treatment slowly and then very rapidly. Complete recovery resulted.

4. A severe case of pyloric stenosis with projectile vomiting but no palpable tumor. There was marked evidence of water loss. Atropine was administered up to 40 drops of a 1:1,000 solution per day. Complete recovery resulted in four weeks.

A. W. BRYAN, M.D.

Carwardine, T.: The Diagnosis of Peptic Ulcer and Its Bearings on Treatment. *Bristol M.-Chir. J.*, 1923, xl, 71.

Duodenal ulcer is more common than gastric ulcer. Chronic gastric ulcer is more often seen in men than in women, but women are treated for this condition when it is not present more often than men. Many reflex conditions are treated as gastric or duodenal ulcer.

The author states that of all cases referred to him for the surgical relief of peptic ulcer during the past year, the diagnosis was correct in only one-third.

Probably 25 per cent of patients receiving medical treatment over a period of five or six weeks without improvement will die if not relieved surgically. Five hundred cases were seen in the London Hospital in the five-year period from 1897 to 1902. The mortality in these was 18 per cent. Forty per cent of the deaths were due to relapse and 10 per cent to perforation.

There is no doubt that the most accurate means of diagnosis is the roentgen-ray examination. With increasing skill in taking rapid exposures and better interpretation of the films, a greater number of cases are detected each year. Carman of the Mayo Clinic is quoted as making an accurate positive and negative diagnosis in 95 per cent of cases seen in a period of six months, 7,000 in all.

The symptoms are classified by the author as follows:

1. Reflex: (1) viscerosensory, pain by paralgnesia; (2) visceromotor, rigidity and increased reflexes; (3) viscerocentral, vomiting and depression.
2. Hyperalgesia (to pinching of skin): Is not considered a certain guide.
3. Muscular rigidity: Seen only when the peritoneum is involved; extreme rigidity immediately after perforation.
4. Tenderness: Unreliable, often misleading symptoms; several organs may give similar reflexes.
5. Pain: Only cause is tension; no pain in ulcers prior to perforation.
6. Hæmorrhage: Unreliable diagnostic symptom; more often caused by appendix or gallbladder.
7. Vomiting: Unreliable except in pyloric obstruction; initiated by central impulses; in young women is often hysterical.
8. Test meals: Test meals are not very reliable as diagnostic agencies. W. J. Mayo states that chemical and microscopic examinations of the gastric contents were of little diagnostic value in 1,200 cases studied.
9. Hunger pain: Due to contraction of the intestinal canal; found in all forms of hypersecretion.

Reference is made to cases of calculus in the right kidney in which both hunger pain and high gastric acidity were present. Other conditions suggesting peptic ulcer are appendix dyspepsia, the presence of omental bands or other adhesions, and abdominal tuberculosis.

HAROLD M. CAMP, M.D.

Koennecke, W.: The Pylorus and Predisposition to Ulcer (Pylorusmagen und Ulcusdisposition). *Zentralbl. f. Chir.*, 1923, 1, 2.

The author began his animal experimentation with the assumption that there is no decided difference in the genesis of gastric ulcer, duodenal ulcer, and peptic ulcer of the jejunum. As, on the one hand, artificial exclusion of the pylorus favors peptic ulcer of the jejunum and, on the other hand, a strikingly high percentage of cases of postoperative jejunal ulcers exhibit a primary duodenal ulcer or a pyloric or duodenal stenosis, a bilateral exclusion of the pylorus was done experimentally (transverse resection of the stomach from 6 to 8 cm. above, and of the duodenum 1 to 2 cm. below the pylorus and lateral anastomosis of the excluded portion of the pylorus with the lower ileum). Following this, a Billroth 1 or 2 operation was done.

After the Billroth 1 operation a penetrating jejunal ulcer was found in one of five dogs.

In a second series of experiments seven dogs were operated upon, but in these a bilateral division of the splanchnics was performed. All of the animals developed typical callous and deeply-penetrating ulcers. The author explains this finding by the assumption that in the absence of the normal inhibition due to the exclusion of the pylorus, there was a physiological excitation of gastric secretion.

The author concludes that exclusion of the pylorus should be avoided and resection of the ulcer of the

pyloric portion or the duodenum should be done. In inoperable ulcer of the duodenum the treatment should consist in resection of the pyloric portion of the stomach including the pylorus, followed by the Billroth 2 operation. Gastro-enterostomy is rarely indicated in cases of ulcer when the pyloric and duodenal passage is unobstructed. LANGE (Z).

Sweet, J. E., Buckman, L. T., Thomas, A., and Bell, E. M.: The Pathogenesis of Peptic Ulcer. *Arch. Surg.*, 1923, vi, 837.

Medical literature abounds with theories relative to the etiology and pathology of gastric and duodenal ulcer. The authors became interested in this problem following the observations of Ellis, who produced hæmorrhagic erosions and ulcers in dogs by the intravenous injection of toxins isolated from animals with high intestinal obstruction. Suprarenalectomy was followed by similar lesions.

The authors attempted to produce gastric ulcers in the dog by means of: (1) a functional high obstruction; (2) a blind duodenal pouch; and (3) by looping the small bowel to cause chronic stasis. They accept the definition of a peptic ulcer as a circumscribed loss of tissue in the wall of the stomach or duodenum surrounded by an area of reactive inflammation and involving one or all of the coats of the intestine. They believe that most acute ulcers heal rapidly, and that chronic ulcers result from unhealed acute lesions. The chronicity of an ulcer they attribute to the pull of the muscle fibers about the ulcer margin.

Smithies regards high acidity as having no bearing on delay in the healing of an ulcer. Bolton believes that the retention of bacteria and a high acid content of the stomach cause continued infection and irritation of the ulcer.

In some of their experiments on dogs the authors sectioned the duodenum between 10 and 30 cm. from the pylorus, closed the cut ends, and anastomosed the distal segment of the small bowel to the stomach. The dogs surviving the operation showed hypertrophy and distention of the blind pouch with hæmorrhagic erosions but no distinct ulcers.

Another series of experiments was based on the supposition that a chronic obstruction leading to a low-grade malnutrition might induce ulcer formation.

In this series of animals the duodenum was twisted upon itself, making a partial volvulus. In another series the duodenum was surrounded by fascial bands 14 cm. from the pyloric sphincter. No ulcers developed in either of these series.

In another experiment a blind duodenal loop was made with drainage through the distal segment from the stomach. In these cases a few suggestive ulcerations were produced.

The authors discuss at length Mueller's view that peptic ulcer occurs in regions of the gastrointestinal tract of embryonic importance: viz., in the stomach, where islands of intestinal glands fuse

with gastric glands; in the oesophagus, where there are islands of gastric mucosa; and in the duodenum, where there are islands of pancreatic tissue. Within such glands, he believes, there is an intracellular activation of digestive ferments by virtue of which the glands themselves and the surrounding tissues are digested.

In conclusion the authors state that it is difficult to explain why a bacterial embolism should affect only a circumscribed round area and should produce an ulcer in spite of a rich arterial anastomosis. Mechanical abrasions or digestion by gastric juice will not explain ulcer formation when we consider how perfectly healing occurs after operative section of the entire wall of the stomach.

JOHN W. NUZUM, M.D.

Portis, M. M., and Portis, S. A.: Multiple Peptic Ulcers. *J. Radiol.*, 1923, iv, 151.

Multiple peptic ulcers occur more frequently than is commonly supposed. They may be confined entirely to the stomach or the duodenum or may develop in both. Whereas formerly the diagnosis was made only at operation or at autopsy, since the use of the roentgen examination it is frequently made before operation. When the ulcers are numerous they are usually of the acute type, but when only two or three are present, they are generally of the chronic variety. Most of the ulcers diagnosed by means of the roentgen ray and found at operation are of the chronic type.

In every roentgen-ray examination for ulcer it is important, if one is found, to look carefully for another. As small ulcers are very difficult to detect, they are often missed unless an especially careful search is made for them.

The histories of two cases of multiple peptic ulcers are reported in detail.

ADOLPH HARTUNG, M.D.

Mann, F. C., and Williamson, C. S.: The Experimental Production of Peptic Ulcer. *Ann. Surg.*, 1923, lxxvii, 409.

Acute gastric or duodenal ulcers can be produced experimentally with relative ease, and the methods which produce them are numerous. Very little success has been attained, however, in the experimental production of the typical chronic or subacute peptic ulcer occurring in man. One of the most important facts in regard to peptic ulcer is its anatomical and physiological location. An absolutely typical ulcer of this kind occurs only in that portion of the gastro-intestinal tract which can be exposed to the action of a mineral acid. This would seem to indicate that acid is an important etiological factor. The results of experiments devised to administer acid for the production of ulcer have been unsatisfactory because of difficulties in its constant administration.

In order that intestinal digestion may proceed, all the acid which is produced in the stomach must be neutralized. This neutralization is effected by the food and by an alkaline mechanism located distal

to the pylorus. The alkaline mechanism consists of three secretions, intestinal secretion, pancreatic juice, and the bile. If digestion in the intestine is to be carried out normally, enough alkali must be produced by these combined secretions to neutralize the acid that passes the pylorus. The upper portion of the intestinal tract can be subjected to an acid medium just as effectively by damaging the alkaline mechanism as by the administration of acid, the difficulties of such administration being thus avoided.

Experiments were carried out which had for their purpose the injury or destruction of the alkaline mechanism so that the intestinal tract distal to the stomach would be subjected to an acid medium. Although several series of experiments were done, the main procedure consisted in resection of the duodenum and transplantation of the pancreatic and common bile ducts into the ileum, or drainage of the three secretions of the duodenum into the ileum at a considerable distance from the point of emergence of the acid from the stomach. After such procedures ulcer develops in the intestinal mucosa just distal to the pylorus in a very high percentage of cases. These ulcers grossly and microscopically present the major characteristics of the chronic and subacute ulcer found in man. A method was thus developed for the consistent experimental production of a peptic ulcer which corresponded pathologically to the lesion occurring in man.

Goepel, R.: Direct Reunion of the Stomach and Duodenum After Gastric Resection by the Invagination Method (Die direkte Wiedervereinigung von Magen und Duodenum nach Magenresektion durch das Einmanschettierungsverfahren). *Zentralbl. f. Chir.*, 1923, l, 201.

Goepel describes a new method of re-uniting the stomach and duodenum following operation for gastric ulcer or carcinoma. This method is a modification of the Billroth I procedure. Instead of the classical sero-serous suturing, a wide union of fresh wound surface in the stomach is joined to the intestinal wall that has little or no serosa, a new principle which, up to the present time, has not found application in gastro-intestinal surgery and admits of successful application also to other portions of the gastro-intestinal tract.

The method is briefly that the line of resection on the stomach and duodenum is first marked off with the scalpel, as much as possible of the lesser curvature being included. Then, after separation of the sero-muscular coat of the stomach along the indicated line, the gastric mucosa is exposed through a small incision, the stomach and pylorus are elevated, and the stomach is separated along the line of the first small incision. Excessive prolapse of the gastric mucosa in the portion selected for the anastomosis is cut away. Following this, partial occlusion of the stomach along the lesser curvature is effected, beginning with a running suture through all layers. Approaching the area where the duodenum is to be implanted, the suture is interrupted and

the mucous and serous layers are united for some distance so that a closed ring of mucosa and a somewhat larger closed ring of serosa are formed.

The actual suturing of the stomach and duodenum is begun by uniting the free edge of the serosa of the posterior wall of the stomach with the posterior layers of the duodenum in a transverse direction at the level and sometimes including the edge, of the pancreas, which had previously been pushed back. By a second transverse line of sutures at a distance of about 1 cm. from the first the duodenal wall is united with the inner layers of the muscularis of the stomach. Both of these two rows of sutures are inserted while the pyloric portion of the stomach is still connected with the duodenum. Not until these rows in the posterior layers of the duodenum are terminated and the reciprocal position of the stomach and intestine is thus assured is the separation of the duodenum performed. This separation is effected at a distance of about 1 cm. from the second row of sutures.

The duodenum then opens directly into the ring formed by the gastric mucosa. This ring of mucosa is sutured to the duodenal opening by a circular row of interrupted sutures. The anterior sero-muscular layer of the stomach then falls cuff-like over the duodenum and is joined to the anterior wall of the latter by two rows of sutures by the same method as that used in suturing the posterior surface. A final sero-serous line of sutures completes the union of stomach and duodenum.

The author has used this method with good results in several hundred cases. LOEHR (Z).

Enderlen, E., Freudenberg, E., and von Redwitz, E.: Experimental Investigations on Changes in Digestion After Operations on the Stomach and Intestines (Experimentelle Untersuchungen ueber die Aenderung der Verdauung nach Magen- und Darmoperationen). *Klin. Wchnschr.*, 1923, ii, 210.

Experimenting on ten dogs with gastric fistulae, the authors investigated the effects of the common gastric operations, gastro-enterostomy and its various modifications, on gastric chemistry.

After perfusion of bile and of the collected duodenal juices through the stomach, only peptic digestion was observed. After exclusion of the pylorus and perfusion of bile and duodenal juices only tryptic gastric digestion was demonstrable. After gastro-enterostomy no peptic digestion, and only weak tryptic digestion, was observed. On the other hand, almost the same reaction prevailed in the efferent loop of the gastro-enterostomy but there was a larger bile content and a strong tryptic digestion.

After the Billroth 1 and 2 procedures and after exclusion of the pylorus, only tryptic digestion was found in the gastric fundus.

Following exclusion of the pylorus, after which the acidity was considerably greater than after the two resections, the digestion was correspondingly very weak since the reaction for peptic and tryptic

digestion was also unfavorable. In the pylorus there was only peptic digestion.

In general, the changes in the acidity of the chyme corresponded to the impairment of protein digestion and the increase in fat digestion in the stomach.

From the experimental findings the authors draw the conclusion that exclusion of the pylorus according to von Eiselsberg should be abandoned, and that the resection methods with the re-establishment of continuity (Billroth 1, transverse resection) are preferable to all others. WOHLGEMUTH (Z).

Douglas, J.: Benign Tumors of the Stomach. *Ann. Surg.*, 1923, lxxvii, 580.

Five cases of benign tumors of the stomach are reported, one of multiple polyposis, three of papillary adenoma (one of which had undergone malignant degeneration), and one of fibroma. The ages of the patients ranged from 38 to 67 years.

The benign gastric tumors most frequently reported are the various forms of myomata. These tumors appear to attain the largest size. Multiple gastric polyposis is the least frequent growth. The myomata and fibromyomata may become cystic or undergo sarcomatous degeneration.

There is a histologic difference between the true multiple polypoid tumors and the papillary adenomata. A pre-operative diagnosis of gastric polyposis is made infrequently as the smaller tumors cause no symptoms. However, the roentgenographic appearance and the achylia gastrica with the egg-white mucus in the lavage return are characteristic of the condition. In cases of other forms of benign tumors the diagnosis may depend on the presence of a palpable growth, anæmia due to repeated hæmorrhage, or the appearance of a portion of the tumor in the vomitus, stool, or lavage return. The symptoms of pyloric obstruction may be caused by a tumor near the pylorus. Two cases of intussusception through the pylorus have been reported.

Except in cases of multiple polyposis, nothing of diagnostic importance can be learned from gastric analysis as the findings range from achylia to hyperacidity. Except in cases of tumor obstructing the pylorus, the X-ray examination shows a six-hour residue less frequently than in cases of carcinoma. A large tumor produces the same X-ray picture as a carcinoma. Occasionally a persistent defect may suggest a tumor, or an extragastric tumor may cause a defect in the gastric outline.

A summary of the operative indications is difficult as benign tumors differ in structure, size, location, and character. Surgical removal of the tumor should be done when indicated by the symptoms or when the diagnosis can be made either before or at the time of operation. With the exception of cases in which multiple tumors are present, the technical difficulty is usually less than in malignant disease because of the absence of infiltration, ulcerations, and metastases in the regional glands. Recurrence will not develop if the tumor is thoroughly removed.

E. C. ROBITSHEK, M.D.

Bohmansson, G.: On Acute Purulent Processes in the Intestinal Wall, a Contribution to the Knowledge of Phlegmonous Enteritis. *Acta chirurg. Scand.*, 1923, lv, 437.

Limited purulent processes localized in the intestinal wall, not proceeding from the appendix or a diverticulum, are not so rare as would appear from the literature on so-called phlegmonous enteritis. The difference between these phlegmons, in a limited sense of the word, and other purulent affections of the intestinal wall is only gradual. The disease may appear in any part of the intestinal canal but is most frequently found in the colon. It is usually of enteric origin, although a hematogenous infective modus cannot be denied. It varies considerably in different cases, oscillating between a violently acute course and transitory forms of the chronic inflammatory tumors. The process may heal spontaneously at any stage without leaving any after-trace or with fibrous cicatrization and stricture of the lumen.

In several cases a mechanical insult may be presumed to have established the port of entry for the infection. In different cases different bacteria have been found as causal agents. In the more acutely progressing cases streptococci are probably the cause.

The macroscopic picture of a phlegmon of the intestinal wall is so characteristic that in most cases a diagnosis can be made without difficulty. Peritonitis is not always present, but when it develops the regional lymph ducts are involved. The margin between the diseased and healthy tissue is seldom sharp, and the microscopic margin usually extends slightly beyond the macroscopic margin. A clinical diagnosis has never been made before operation. The symptoms vary considerably according to the localization of the condition and the virulence of the causal bacteria. Operation is always indicated if the patient's condition will allow it. Although several cases of spontaneous healing are known, the results of resection speak in favor of this method of treatment when it is technically possible.

CARL R. STEINKE, M.D.

Braeunig, K.: Developmental Anomalies of the Intestines as a Cause of Intestinal Obstruction (Entwicklungsstörungen des Darmes als Ursache von Darmverschluss). *Deutsche Ztschr. f. Chir.*, 1922, clxxvi, 227.

The various malformations of the intestines and mesenteries can be understood only from their embryological development. Among the most simple forms is the mobile cæcum with a common mesentery for the lower ileum and ascending colon which favors volvulus and invagination. When the common mesentery is well developed, axis torsion of the entire small intestine with the ascending and transverse colon around the axis of the common mesentery and extensive invagination of the cæcum into the large intestine may be observed. Volvulus of the sigmoid flexure is also to be considered as a

primary developmental anomaly of the large intestine. Deficient fastening of the transverse colon to the stomach favors volvulus of the transverse colon.

These various anomalies have surgical interest as they render the diagnosis of abdominal diseases very difficult; in most cases they are recognized only after the abdominal cavity has been opened.

BANGE (Z).

Long, J. W.: The Value of Enterostomy in Intestinal Obstruction. *Texas State J. M.*, 1923, xviii, 606.

Enterostomy is indicated in two widely different pathologic conditions, one characterized by starvation and the other by toxæmia and sepsis. An example of the former is the case of inoperable carcinoma of the stomach situated near the cardia, and an example of the latter the case of obstruction lower in the alimentary canal.

Enterostomy is done both to prevent and to relieve obstruction. In bowel resection for any cause, the insertion of a tube in the proximal gut constitutes the prophylactic type of enterostomy. Enterostomy is not advocated to the exclusion of other operative procedures by which the primary cause of the obstruction can be removed without causing too great trauma.

In the paralytic type of ileus neither enterostomy nor any other operative procedure is of avail. It should be borne in mind that, if unrelieved, the mechanical type of ileus soon becomes the paralytic type because of the advancing sepsis and toxæmia.

In doubtful cases it is a good rule to operate, as without operation death is certain and the opening of the bowel and the use of pituitrin may stimulate the intestine to activity.

It is rarely necessary to remove the patient from his bed or to give a general anæsthetic.

By far the best, the simplest, and the safest plan is to surround the presenting coil with gauze to prevent possible soiling, apply a pursestring suture of fine chromic gut, puncture the coil with a scalpel or a small thermocautery (Long prefers the latter because it prevents bleeding and eversion of the edges, seals the layers together, and promotes the ultimate healing of the fistula) and, after tying the pursestring suture which inverts the edges, introduce another similar suture. It is well to catch the tube with one of the sutures to prevent peristalsis from pulling the gut away from the tube.

The most important item in the technique is to secure the omentum about the fistula and tube. The ideal plan is to pass the tube through a small hole in the omentum. If the omentum is thin, it should be bunched about the fistula. In any case, it must be fastened to the gut by two or more sutures. The proper use of the omentum around the fistula insures prompt closure after the withdrawal of the tube. Long has had a number of cases in which there was not one drop of leakage

after the tube was withdrawn. The intestine, covered with omentum, may be sutured to the parietal peritoneum, if desired, but Long believes it is usually better to place iodoform gauze between the omentum and the peritoneum after removing the first piece of gauze. This will quickly promote adhesions and incidentally will act as a temporary superficial drain.

The mortality following enterostomy is necessarily high and always will be because the operation is usually done only in the most desperate cases. Of eight patients subjected to enterostomy in the period from 1904 to 1908, five recovered and three died. Of ninety-three operated upon in the period from 1904 to 1923, fifty-one recovered and forty-two died. Therefore in 101 cases there were fifty-six recoveries and forty-five deaths.

CARL R. STEINKE, M.D.

Cavina, G.: Experimental Research upon Artificial Stenoses of the Intestine (Ricerche sperimentali sulle stenosi artificiali dell'intestino). *Ann. ital. di chir.*, 1923, ii, 72.

Following the usual methods for entero-anastomosis the intestinal contents show a marked tendency to follow the normal route rather than to empty through the newly created opening. To obviate the inconveniences arising from this without resorting to transverse intestinal section many surgical methods have been proposed to cause stenosis of the intestine beneath the neostomy. These may be divided into two principal types, the plastic and the ligature methods. The ligature method may be further subdivided according to whether the material employed for the ligature is inorganic or organic. The author reviews the literature on these various methods.

In the surgical clinic of the University of Bologna, Cavina carried out fifteen experiments on dogs to test the value of the ligature methods and ligature materials. In two experiments intestinal stenosis was caused by a metal ring; in two, by cotton tape; in three, by aponeurotic strips; and in five, by an extra-mucosal plastic. The intestinal union was a latero-lateral anastomosis of two loops with a double plane of continuous sutures, and as a rule was anti-peristaltic. The ligation with strips of aponeurosis was done by the technique adopted by Bogoljuboff (1908). The strips were obtained from the anterior sheath of the abdominal rectus muscle.

In experiments in which the attempt was made to cause stenosis of the ileum by means of a metal ring or cotton tape, it was found that the intestinal lumen returned to practically normal after a short period of time. It was discovered also that intestinal stenoses obtained by means of inorganic materials were only temporary and that the ligature cut through the intestinal wall and finally reached the lumen from which it was expelled.

The experiments executed according to the Bogoljuboff technique showed that ligaturing the intestine with a living aponeurotic strip gives much

better results than those obtained by means of inorganic materials. With an autoplasmic strip an intestinal stenosis can be obtained which, even if anatomically incomplete, is very marked and persists for a long period of time—in the author's experiments, from three to five months. The strip does not pass through the intestinal wall, but like all other free grafts shows a tendency to undergo degeneration and necrosis.

An extra-mucosal plastic caused only a temporary very sharp occlusion; the intestine rapidly became patent.

Of all four methods of ligating the intestine the aponeurotic strip method gave the best results.

W. A. BRENNAN.

Haudek, M.: The Reliability of the Roentgen Diagnosis of Duodenal Ulcer (Zur Frage der Verlässlichkeit der Roentgendagnostik des Ulcus duodeni). *Wien. klin. Wchnschr.*, 1922, xxxv, 987.

In one and a half years Haudek has made the roentgenological diagnosis of duodenal ulcer in seventy cases. In thirty-six of thirty-eight cases the diagnosis was confirmed at operation, but this was sometimes possible only after resection. The roentgenological diagnosis was based on direct symptoms, these being: (1) bulb deformity, (2) lessened intensity of the shadow, and (3) transitory filling. The niche, which Akerlund found in 66 per cent of his cases, was seen by Haudek in only 20 per cent on fluoroscopic examination.

Of the total number of ulcers observed, 35 per cent were in the middle region of the stomach, 5 per cent were prepyloric, and 55 per cent were in the duodenum. For filling the duodenum Haudek employs a concentrated watery suspension of barium. The patient is examined in the erect position, but if necessary, is first placed on his right side with his pelvis elevated.

GRASHEY (Z).

Enfield, C. D.: The Relative Value of X-Ray Evidence in the Diagnosis of Duodenal Ulcer. *J. Radiol.*, 1923, iv, 127.

This article is based upon forty cases. The analysis included an exhaustive history, a careful physical examination, gastric analysis, a complete blood examination, including a Wassermann test, a urine analysis, a test for blood in the stools, and an X-ray examination of the entire gastro-intestinal tract, including the gall-bladder. The confirmation of the diagnosis rested upon the prompt and decided response to medical treatment.

A typical ulcer history was given in 45 per cent of the cases. In 35 per cent more, the history, although not typical, was suggestive. Physical examination was of little value, the only sign being epigastric tenderness and rigidity in 70 per cent of the cases. Gastric analysis was conducted by the fractional method; curves typical of ulcer were obtained in 37.5 per cent. Occult blood was found in the gastric contents in 20 per cent, and in the stools in 12.5 per cent.

In the X-ray examination 80 per cent of the cases were found to have a persistent cap deformity. In the other 20 per cent the evidence was indirect, that is, no normal cap was obtained by postural or palpatory efforts, and hypertonicity, hyperperistalsis, and hypermotility were present.

The author believes the X-ray examination deserves first place in the diagnosis of duodenal ulcer because its findings are based upon two pathologic changes, the break in the continuity of the mucosa and the surrounding inflammatory zone with its irritated nerve endings. The history he regards as second in importance.

C. H. HEACOCK, M.D.

Disqué, L., Jr.: A Case of Carcinomatous Ulcer of the Duodenum (Ein Fall von Ulcus carcinomatosum duodeni). *Arch. f. Verdauungskr.*, 1923, xxx, 306.

In the case reported, that of a 60-year-old man, a diagnosis of duodenal ulcer with periduodenal adhesions was made on the basis of the history, occult hæmorrhage, and the roentgenographic finding of enlargement of the duodenal bulb with pocket formation at the lesser curvature and a constant hour-glass constriction at the greater curvature of the bulb.

Operation showed the presence of a tumor opposite the papilla of Vater, which had invaded the pancreas. The course of the disease confirmed this assumption. Unfortunately a postmortem examination was not made. The roentgenographic finding was caused, not by an ulcer niche, but by a pocket formation produced by adhesions. Therefore this condition as a source of error should be borne in mind. In every case of duodenal ulcer, even those in which the ulcer is on the posterior wall, the occult bleeding will cease when a rest cure is given and then will appear only intermittently. Constant occult bleeding suggests carcinoma.

VON REDWITZ (Z).

Mann, F. C., and Kawamura, K.: Duodenectomy: A Report of an Experiment Four Years After the Operation. *J. Lab. & Clin. Med.*, 1923, viii, 523.

The duodenum was removed from a dog and the continuity of the gastro-intestinal tract restored by an end-to-end anastomosis of the jejunum to the stomach. The first portion of the jejunum thus assumed the position normally occupied by the duodenum. The common bile duct and pancreatic ducts were transplanted into this transposed portion of the jejunum at approximately the same distance from the pylorus and from each other as they occurred normally.

The experiment is of interest because it shows: (1) the effect of removal of the duodenum, and (2) the effect of transplantation of the common bile and pancreatic ducts. The animal remained in perfect health and maintained its normal weight for four years following removal of the duodenum, and there is no reason to believe that the duodenectomy would

ever have affected its health if it had been allowed to live longer. The experiment therefore definitely proves that in the dog the duodenum is not essential to the maintenance of life or good health, and that whatever function it may have can be compensated for by the remainder of the intestinal tract. It is shown also that the transplantation of the bile and pancreatic ducts can be carried out successfully, so that these glands will remain practically normal for a long time.

Braun, A.: Primary Intestinal Phlegmon (Zur Kenntnis der primären Darmphlegmone). *Beitr. z. klin. Chir.*, 1923, cxxviii, 142.

The author reports a case of intestinal phlegmon in a man 35 years old who was admitted to the hospital with the diagnosis of appendicitis. Nine years previously he had been kicked in the abdomen by a horse, and seven years previously he had been treated in a hospital for suspected typhoid. Later there had been pain in the lower abdomen which was associated with vomiting and headache. Several days before his admission he experienced sudden pain in the region of the umbilicus and in the right side of the abdomen. No vomiting occurred. Three or four normal stools were passed daily. There was slight tenderness on pressure in the ileocecal region, and an indefinite resistance was noted on deep pressure.

At operation the appendix was found normal, but the lowest loop of small intestine, about a hand's breadth from its entrance into the cæcum, presented a definite thickening of its walls. The serosa was markedly reddened, and the mesentery heavily infiltrated with old whitish scars. Digital examination disclosed several open ulcerations in the intestinal mucosa. One of the swollen lymph nodes was removed for pathologic examination; simple inflammatory changes were found.

After the operation the symptoms improved somewhat, but the sensation of pressure in the abdomen remained. At a second operation it was found that the thickening of the intestine had decreased and the serosa and patency of the gut were normal. The appendix, however, was greatly distended and therefore was removed. Smooth recovery followed.

Intestinal phlegmon usually has an acute onset and a poor prognosis. The chronic cases, after exacerbations, may finally go on to complete cure, but the signs of stenosis in the affected intestinal loop persist.

BODE (Z).

Matthews, A. A.: Megacolon. *Northwest Med.*, 1923, xxii, 135.

Matthews reviews the literature on megacolon and reports two cases. Although the disease was described as early as 1825 by Parry, Hirschsprung's splendid monographs on the subject have attached his name to it. In the author's opinion, "congenital idiopathic dilatation of the colon" or "megacolon congenitum" are the most appropriate terms for the

condition. Finney in 1908 found 208 articles on the subject, and Dowd reviewed the literature up to 1921.

The cause of megacolon is still unknown. The majority of cases have a congenital origin. True megacolon occurs in infancy. Cases occurring in adult life (pseudo-megacolon) are presumably due to an aggravated type of chronic constipation. While the entire colon and sigmoid may be involved, Mummery states that the sigmoid was chiefly affected in 80 per cent of his cases. Approximately three males to one female are affected. There is a slight familial tendency as two cases in each of several families have been reported. The degree of dilatation of the large bowel varies greatly. Cases have been reported in which the colon contained from 4 to 16 liters of fecal material.

It seems probable that a variety of factors are responsible for the dilatation of the large bowel, viz., congenital hypertrophy of the muscular fibers above the rectum, an abnormally long mesentery of the sigmoid, chronic constipation, mechanical obstruction with resultant distention and hypertrophy of the colon, spastic constriction of the sphincter ani, neuropathic dilatation, hypertrophy, etc.

The chief symptom of megacolon is obstinate constipation, bowel movements occurring only once every several days or even only once a week. The constipation is associated with abdominal distention, emaciation, foulness of the breath, a cold clammy skin, a low blood pressure, audible borborygmi, intermittent attacks of diarrhoea, and ultimately death if it is not relieved. Clinically the disease is readily recognized if the patient is examined before the bowels are evacuated. The history, the physical findings, and the barium enema make the diagnosis certain.

In the majority of cases megacolon is best treated surgically since medical treatment yields only temporary relief. Surgical treatment aims at the removal of the functionless segment of large bowel and is best carried out in two or more stages. Preliminary cæcostomy followed later by colectomy is usually the operation of choice. It is certain that the two- or three-stage operation carries the lowest mortality and gives the best results.

The author's first case was that of a boy 5 years of age who developed obstinate constipation in very early life. This merged into obstipation. The abdomen became distended, vomiting and fever appeared, and the patient died in convulsions. At autopsy the entire colon and sigmoid were found dilated, being larger than the colon of the adult. The sigmoid showed marked hypertrophy of its walls and had an abnormally long mesentery. The second case was that of an adult male first seen in consultation on the operating table. The large bowel filled the entire abdomen. The appendix was removed and a cæcostomy established. After the operation enormous quantities of fecal material were expelled through the colostomy opening. The general condition then steadily improved.

JOHN W. NUZUM, M.D.

Firth, D., and Playfair, K.: **Congenital Idiopathic Dilatation of the Colon.** *Arch. Radiol. & Electrotherapy*, 1923, xxvii, 321.

The authors report a case of congenital idiopathic dilatation of the colon. The report is illustrated with roentgenograms demonstrating the condition. The patient was a boy of 10 years with a history of constipation from birth. The stools were hard and small. Frequently the bowels were not open for as long as three weeks at a time. The patient was sallow, but in a fair state of nutrition. His appetite was good. The rectum was ballooned, and within it a mass of hard feces the size of an orange was felt. A large hard mass was palpated in the left iliac fossa. The circumference of the abdomen was 23 in.

After cleansing of the bowel with an enema, a bismuth meal was given and X-ray examinations were made at intervals for twelve days. During this time the bowels were never open. The sigmoid and colon contained bismuth within twenty-four hours, and later the descending and transverse colon. Between the sigmoid and descending colon there was a definite kink. Two subsequent observations revealed a markedly enlarged sigmoid and descending colon. There was a sharp angular scoliosis due to congenital maldevelopment of the left half of the tenth dorsal vertebra.

Wakeley suggested that possibly the dilatation of the colon may have been related to imperfect development of the splanchnic nerves given off at the level of the half-vertebra.

CARL D. NEIDHOLD, M.D.

Carman, R. D.: **Roentgenological Signs of Cancer of the Colon.** *J. Radiol.*, 1923, iv, 147.

The author summarizes the findings in a series of 359 patients with cancer of the colon examined and operated on at the Mayo Clinic. Cancers of the rectum and rectosigmoid were not included.

The same histologic forms were found as in the stomach; namely, the cylindrical-cell adenocarcinoma; the small-cell, soft, medullary form; the hard, scirrhous variety; and the mucoid or colloid carcinoma. The medullary cancers grow rapidly and tend to slough deeply. The scirrhous cancers tend to encircle the bowel, producing the napkin-ring form, and ulcerate only superficially. Lane considers the most common locations of cancer of the colon to be: (1) the ascending colon about the level of the crest of the ilium, (2) the transverse colon near the hepatic flexure, (3) the splenic flexure, (4) the descending colon at about the level of the crest of the ilium, and (5) the juncture of the pelvic and iliac segments. Metastases from cancer of the colon are much less common than metastases from the stomach, probably because of the distribution of the lymphatics of the two organs. In 50 per cent of all cases coming to autopsy the growth in the colon had remained local.

The author prefers the opaque enema since the barium meal has many disadvantages in its use; for

example (1) its tendency to accumulate in the cæcum or rectum, (2) the repeated observations required to visualize the intervening segments, and (3) the stringing out of the barium meal in an irregular fashion suggesting pathologic alterations in contour. The routine at the Mayo Clinic is as follows:

The patient is not allowed to have any supper the evening before the examination and is given 60 c.cm. of castor oil. The next morning the bowel is cleared out with a soapsuds enema. The enema is made up of 240 gm. of barium sulphate held in suspension by condensed milk and mucilage of acacia, the total quantity being 2 liters. This is warmed to body temperature and administered to the patient in a recumbent position, with the container elevated from 0.5 to 1 m. above him. The enema is watched as it fills the colon, and the abdomen is manipulated, if necessary, to assist observation. One or more plates are made for confirmation of the findings and record, but a diagnosis is never attempted on the roentgenographic findings alone.

Roentgenological signs of a cancer of the colon are the filling defect and obstruction to the enema. The filling defects vary widely, depending on the size and character of the growth. They are due to the intrusion of the tumor into the intestinal lumen, infiltrative stiffening of the intestinal wall, and local spasm excited by the lesion.

Incomplete obstruction cannot be differentiated from a slowing of the enema due to ordinary causes. Surgeons at the Clinic have observed that a marked stenosis may be found at operation when the roentgenologist has not noted any obstruction to the enema. In complete obstruction, the enema may terminate as a conical projection or be rounded off bluntly. If the stenosis is marked, the bowel proximal to the lesion may show some dilatation.

Palpation for masses is also a part of the roentgenological examination, in order to determine not only their presence but also their relationship to the changes observed in the contour of the colon. A mass corresponding to a filling defect or to a point of obstruction increases the certainty that a lesion of the colon is present.

Slight local irregularities due to localized spasm, haustral tonus, or external or internal pressure are normally so common that it is unsafe to regard them seriously, yet they must be excluded if a correct roentgenographic interpretation is to be given. This can be done by repeating the examination after the administration of antispasmodics. Apparent filling defects may be produced also by gas in the bowel or by pressure of the spine on the transverse colon. Tumors outside the colon may indent its outline, but manipulation will usually exclude them.

It is very difficult to differentiate between cancer of the cæcum and tuberculosis, actinomycosis, and appendiceal abscess. The absence of tuberculosis from the lungs is of some value in excluding this lesion in the colon. Diffuse ulcerative colitis is rarely mistaken for cancer, but if the condition is localized

in extent, it cannot be distinguished from the latter with any degree of certainty. Peridiverticulitis also simulates cancer very closely, but may be excluded if barium-filled diverticula are demonstrable. Adhesions which cause obstruction or a filling defect are very rare.

Finally, the colon may be the site of lymphosarcoma or benign tumors, from which cancer cannot be distinguished. In 9.2 per cent of the cases reported by the author, the roentgenologist failed to discover any sign of a lesion, probably because small irregularities of the colon are usually meaningless.

The author summarizes his findings in the series of cases and his impressions are as follows:

1. More than 90 per cent of cancers give definite roentgenological evidence of a lesion.
2. A diagnosis of cancer cannot be made on roentgenological findings alone.
3. Cancers of the cæcum are more apt to escape detection than those in any other part of the colon.
4. Ring cancers are the easiest to detect.
5. All cases of carcinoma of the colon should be explored, regardless of the roentgen-ray findings.

Fowler, H.: The Appendix and Its Rôle as Masquerader. *Med. Times*, 1923, li, 57.

In the pre-operative care of appendicitis catharsis is contra-indicated, nothing should be given by mouth, the patient should be placed in the Fowler position, the bowel should be cleansed by a low soapsuds enema, and morphine should be withheld to avoid masking the symptoms.

It has been the author's practice to maintain the patient in the Fowler position before and during operation and through the convalescence. The patient is even transported to the operating room in this position.

A tabulation of eighty cases treated in the period from 1898 to 1915 shows that, irrespective of the type of treatment, the general mortality of appendicitis with peritonitis has been reduced by 55 per cent. The average mortality was 66 per cent. When postural drainage was employed it was 46 per cent, and when postural drainage was not employed, 81 per cent.

The white cell count and the differential count are of great importance in diagnosing the progress of the lesion. A case is reported which suggested renal stone. On the basis of the history and the laboratory, X-ray, and cystoscopic examinations, it was decided that there were bands or veils constricting the ascending colon. At operation the appendix was found to be retrocæcal and wound around the ascending colon. Its tip was just below the liver. The cæcum was practically absent, the terminal ileum being inserted into the colon in the form of a funnel-like expansion.

Abnormalities of position of the cæcum are the most frequent cause of aberrant types of appendicitis.

In conclusion the author quotes a number of articles on congenital malformation of the cæcum

and colon from the literature and reports a second case briefly.

I. EDWARD BISHKOW, M.D.

Speed, K.: Appendicitis in Children 14 Years of Age and Under. *Am. J. Surg.*, 1923, xxxvii, 97.

The author gives a comprehensive study of 313 cases of appendicitis in children 14 years of age and younger. There were 175 boys and 138 girls. In 87 per cent of the cases the condition was acute, and in 12 per cent it was chronic. The author believes that many chronic cases are unrecognized as to the parents the symptoms are misleading.

Many of the chronic cases reviewed were discovered after the administration of an overdose of castor oil, a prolonged period of constipation, or diarrhoea, which led to acute manifestations. The pathology in these cases is decidedly uncertain and unreliable. In three cases in the series foreign bodies were found in the appendix, and in 10 per cent there were faecoliths. Fourteen patients had diarrhoea either before or after the operation; in these the prognosis was poor. Bacteriological examination showed only the usual intestinal flora. In some cases apparently metastatic infections such as mastoiditis, parotitis, and other acute abscesses, particularly in bones, have followed appendicitis. In about 5 per cent of the appendices examined, the streptococcus haemolyticus was found. The author suggests that it may have reached the appendix by the blood stream. Because of the comparatively slight development of the omentum in children, the omentum usually cannot be depended upon to render much assistance in walling off the infective process. In the author's series of cases general peritonitis was present on admission to the hospital in 6 per cent, an intra-abdominal abscess was found in 26.8 per cent, the appendix had ruptured in 27.7 per cent, and the appendix was gangrenous, either ruptured or floating in pus, in 23.3 per cent.

The blood count did not give a great deal of information as the leucocyte count was high in the cases of unruptured appendix as well as in those in which rupture had occurred. However, a low count was found nine times as frequently in the former as in the latter.

There were nineteen deaths, a mortality of 6 per cent. All of the patients who died had had catharsis before their admission to the hospital. Eighteen of these had a gangrenous or ruptured appendix, and nine had general peritonitis. In two cases drainage was apparently inadequate. Four deaths occurred late, following a secondary operation from one to two months after the first. One death was attributed to ether anaesthesia. Of the nineteen fatal cases, eight were treated by drainage alone, while in eleven the appendix was removed and drainage then instituted.

The symptoms varied considerably. Besides cramp-like abdominal pain, vomiting, abdominal tenderness becoming localized in the right iliac fossa, and fever, many of the patients experienced a chill at the onset, 80 per cent showed sweat-

ing, and many had urinary symptoms, cough, constipation, and diarrhoea.

In cases of abscess, the author favors drainage as soon as the condition is recognized. In some of the cases with abscess and vomiting, intussusception is suggested. Pain is of little diagnostic or prognostic value. In many cases with an overwhelming infection there is little pain. After the appendix ruptures, there is frequently, as in adults, a subsidence of the symptoms which may be misleading. When the child will not permit abdominal palpation, the abscess may be felt through the rectum.

Ninety-five per cent of the children had been given a cathartic, usually castor oil, before admission to the hospital. The author believes that in 50 per cent of the cases this is responsible for rupture before the patient is seen by the surgeon. He believes also that practically all cases should be operated upon immediately. The technique must be flawless as the patient's resistance is lowered and he is susceptible to secondary infection from contamination. In cases of appendiceal abscess it is the author's practice to drain toward the iliac crest unless the mass points down toward the rectum, when rectal drainage can be instituted. The surgeon should not attempt too much. Frequently it is advisable merely to institute drainage. The abdominal wound is often left wide open, especially if peritonitis is evident. In many cases a Mikulicz or modified Harris drain is used.

Drainage over a long period of time is essential unless the drainage of pus ceases. In addition to free drainage, the Fowler position and the maximum ingestion of fluids are essential in cases of peritonitis. Death results usually from a combination of shock and toxæmia. HAROLD M. CAMP, M.D.

McConnell, A. A., and Hardman, T. G.: Abnormalities of Fixation of the Ascending Colon: The Relation of the Symptoms to the Anatomical Findings. *Brit. J. Surg.*, 1923, x, 532.

Stimulated by Waugh's article on the mobile ascending colon, and realizing the possible importance of Waugh's conception in abdominal surgery, the authors have decided to observe the ascending colon in every abdominal case and to determine whether its anatomical condition is in any way responsible for the symptoms or disease found. The report of the results of this investigation is preceded by a description of the normal ascending colon, the manner of its development, the variations from the normal which the authors have encountered, and the symptoms associated with these variations.

In cases of mobile ascending colon the authors have not performed colopexy unless a definite anatomical connection could be traced between the mobile ascending colon and the symptoms. In some of the cases reviewed the operation was not properly performed. In one case a carbolic swab placed in the wound after faulty closure of the peritoneum caused irritation of the peritoneal surfaces. This patient was re-operated upon twice for adhesions

to the abdominal scar. In another case adequate relaxation of the abdominal walls was not obtained and fixation of the colon could not be performed satisfactorily. An X-ray examination six months later showed that the colon was as mobile as ever but, whereas previously it had been angulated, it was then straight.

With regard to general treatment, the authors are of the opinion that these cases are orthopedic cases in the modern acceptance of that term, and that orthopedic treatment is necessary. The principles of treatment are: (1) to make the mobile ascending colon straight, and (2) to prevent its exercising traction on the structures to which it is attached. In the cases studied, non-operative treatment on orthopedic lines gave better results than medical treatment, and surgical fixation of the colon gave better results than either.

E. C. ROBITSHEK, M.D.

LIVER, GALL-BLADDER, PANCREAS, AND SPLEEN

Heyd, C. G.: Hepatitis, Cholelithiasis, Hydrops of Gall-Bladder. *Surg. Clin. N. Am.*, 1923, iii, 373.

Heyd reports a case in which he made a diagnosis of hydrops of the gall-bladder associated with cholecystitis and hepatitis. This diagnosis was based upon the history, the physical examination, and the roentgen-ray examination, these being mentioned in the order of their relative importance.

Gastric dyspepsia is the most frequent symptom in abdominal conditions. Forty per cent of persons complaining of indigestion have the cause of their dyspepsia in organs entirely remote from the abdomen. Forty per cent have the etiological factor within the abdomen but remote from the stomach, and less than 20 per cent have actual organic disease of the stomach. Ninety-five per cent of surgical conditions in the abdomen consist of ulcer of the stomach, cancer of the stomach, diseases of the appendix, and affections of the biliary system. The early symptoms of cholecystitis are always gastric. Chronic gaseous indigestion with attacks of colicky pain and jaundice are symptoms which make a diagnosis of biliary disease nearly positive. The exceptions to Courvoisier's law are few. The case reported in this article is one of them.

Bile in the gall-bladder is of different composition from the bile in the liver and ducts. While bile is secreted continuously, it is delivered periodically. The delivery of bile into the duodenum is accomplished by the hepatic secretory pressure, the expulsive force of the gall-bladder plus the suction action of the diaphragm and relaxation of the sphincter of Oddi. Bile is not purely an excretion, as bile salts are continuously re-absorbed.

In 20 per cent of lesions of the gall-bladder requiring surgery, stones are absent. In the majority of cases cholecystitis represents a direct infection of the wall of the gall-bladder from an infected liver through the lymphatic system, the infection

reaching the liver by the portal vein. In the absence of stones, a gall-bladder is considered pathologic when there is a loss of normal color, a marked increase in the thickness of its walls, the deposition of saffron-colored fat up to and on the fundus, the presence of hyperplastic lymph glands along the course of the ducts, the presence of a papillomatous mucous membrane, and the presence of white plaques extending from the serosal covering of the gall-bladder to the liver. The presence of pericholecystitis is suspicious only.

An infected gall-bladder is an expression of pathologic changes more widespread than the limits of the gall-bladder and usually indicates liver changes also. The liver stands as a buffer between the general and the portal circulations and functions as a filter. Its arterial supply is very limited considering the size of the gland and compared with that of the spleen and kidney. The liver responds to chronic toxic irritation by two pathologic processes—one, degeneration of liver cells, and the other, proliferation of connective tissue. These processes occur simultaneously. Because of its high reparative power, the liver is capable of withstanding long-continued injury with but slight impairment of function. Unless the changes are produced rapidly, no symptoms of hepatic insufficiency will be noted for a long time. The author describes three clinical states which occasionally follow operations on the biliary tract and are characterized by profound vasomotor depression and signs of cholæmia. These cases are at present under investigation and perhaps represent hepatic insufficiency with a resulting alkalosis.

In performing a cholecystectomy, Heyd makes a longitudinal incision, and in all cases in which the peritoneal cavity is free from infection he carries out a systematic exploration of the abdominal contents. The appendix is always removed as there is a close interrelationship between pathologic changes in the appendix and disease of the right upper quadrant. Heyd performs his cholecystectomy from below upward, doing all the work under direct vision and keeping in mind the various anomalies of the ducts and arteries. The raw surface on the liver is covered over with peritoneum if possible, and a prophylactic drain is always left in Morrison's space. A small piece of tissue is excised from both the right and left lobes of the liver to determine whether hepatitis is present or not, and if it is present, whether it is of biliary or portal type. Heyd has found that the presence of white bile in obstruction of the common duct is uniformly associated with an increased surgical risk approximating 20 per cent.

C. J. GLASPEL, M.D.

Muller, G. P.: Arsphenamin Jaundice Simulating Biliary Duct Obstruction. *Surg. Clin. N. Am.*, 1923, iii, 125.

Muller reports a case in which jaundice developed several months after the onset of treatment for syphilis with salvarsan. The jaundice was associated

with enlargement of the liver 1 in. below the costal margin. The Wassermann reaction was positive. The patient was cured by mixed treatment.

Jaundice of luetic origin may occur: (1) during the florid stage of the disease (syphilitic hepatitis); (2) from acute necrotic hepatitis; (3) in association with hepatic gumma or cirrhosis; and (4) after arsphenamin therapy. Jaundice associated with arsphenamin treatment may be due to: (1) the action of the arsphenamin upon the spirochætes infecting the liver, or (2) arsenical poisoning of the hepatic parenchyma with resulting fatty degeneration.

The jaundice may occur during, soon after, or as late as ten or twelve weeks after treatment. Late jaundice is not infrequent, and in the cases of jaundiced patients a history of previous arsphenamin treatment is extremely important. Harrison states that jaundice occurs in 0.6 per cent of the cases of syphilis during or subsequent to treatment with arsenical preparations. Todd has observed that it occurs more frequently in the winter when the diet is rich in fats and proteins. Physical examination shows hepatic enlargement in from 40 to 50 per cent of the cases, but later in the course of the disease this tends to decrease. A decrease in the size of the liver during the jaundice is against common duct obstruction from stone.

The disease is usually afebrile, but prodromal symptoms and a marked febrile reaction may be present. Occasionally, the temperature may rise to 103 or 104 degrees F., and chills, nausea and vomiting, and epigastric pain may complicate the picture. Pruritus may be distressing, and abdominal tenderness located in the epigastrium or over the enlarged liver is usually demonstrable. Bile pigments in the fæces may be diminished, but this is not the rule, although occasionally the stools, which are usually light green in color, may be clay colored. The latter is more apt to occur in the severe or fatal cases in which the condition simulates acute yellow atrophy.

The average duration of the jaundice is about four weeks, but it may persist for several months. More recent writers agree that the pathology is probably that of a diffuse interlobular hepatitis. The persistent presence of bile in the fæces except in the fatal cases simulating acute yellow atrophy, the dissociation of the biliary substances as excreted in the bile, and the slow disappearance of the jaundice are against obstruction as a cause of the icterus. Van der Burgh has been able to differentiate between jaundice from liver damage and that due to stasis, and his test will greatly assist in future cases in which the differential diagnosis may be difficult.

S. J. SEEGER, M.D.

Vysin, V.: Melæna with Gall-Stones (Blutige Stühle bei Gallensteinen). *Časop lék. čes.*, 1923, lxii, 30.

The relationship between cholelithiasis, duodenal ulcer, and appendicitis explains why, in cases show-

ing symptoms of cholelithiasis, melæna may appear and render the diagnosis of cholelithiasis doubtful. This finding will always be explained by operation. The author reports a case in which intestinal hæmorrhage followed severe calculous colic. At operation the suspected duodenal ulcer was not found, as it had probably healed in the six-week interval between the hæmorrhage and the operation.

KINDL (Z).

Piersol, G. M., and Bockus, H. L.: A Study of the Bile Obtained by Non-Surgical Biliary Drainage, with Especial Reference to Its Bacteriology. *Am. J. M. Sc.*, 1923, clxv, 486.

Hollander, E.: Experiences with Non-Surgical Biliary Drainage (Meltzer-Lyon Test). *Am. J. M. Sc.*, 1923, clxv, 497.

The method of biliary drainage instituted by Lyon and based upon Meltzer's hypothesis is a useful and practical procedure; the bile obtained in this way is derived from the common bile duct, the gall-bladder, the hepatic duct, and the biliary capillaries, in the order named.

The disease condition of the gall-bladder and the bile ducts can be recognized by microscopic and bacteriologic study of the bile. Because of its bland action on the duodenal mucosa, 5 per cent peptone is suggested for diagnosis instead of strongly hypertonic magnesium-sulphate solution.

In chronic cholecystitis a normal reaction may be present. The findings obtained by non-surgical biliary drainage should be correlated with other clinical data.

SAMUEL KAHN, M.D.

Beresoff, E. L.: The Change in the Blood Picture Following Splenectomy, a Result of the Beginning Disturbance of Internal Secretion (Die Veränderung des Blutbildes nach Splenektomie, eine Folge der einsetzenden Störung der inneren Sekretion). *Klinitscheskaja Med.*, 1921, iv, 18.

In the main, the results of investigations of the blood in man after splenectomy have been uniform. All investigations, from the first by Hartmann and Vaquez, to the last, the very complete work of Schulze, showed that in all persons who had undergone splenectomy the number of lymphocytes increased, and that after approximately five months an eosinophilia of 8 to 16 per cent appeared. Therefore it may be considered as proved that the spleen does not take part in the formation of mononuclear and polynuclear cells. The increase in the number of the lymphocytes is explained by Kurloff and other investigators as follows:

The spleen participates extensively in the formation of lymphocytes, but if it is removed, an increased demand is made upon the lymphatic glands and a compensatory glandular hyperfunction takes place, which manifests itself anatomically by swelling and enlargement of the glands.

How can it be explained that the removal of the spleen, which forms only a small part of the lymphatic tissues, calls forth such a marked hyperfunc-

tion of the remaining lymphatic glands, and how does it happen that in Banti's disease, in which the splenic pulp is sclerosed and therefore the lymph follicles, the providers of the lymphocytes, are almost destroyed, an increased production of lymphocytes appears after the removal of the spleen? If this increase in the number of lymphocytes is the result of a compensatory process, how does this process take place so very rapidly, almost on the very day of the splenectomy? One would rather expect that at the beginning the number of leucocytes would decrease until the organism became "conscious" of the lack of leucocytes, and that only then would there be a compensatory production of leucocytes by the remaining lymphatic glands.

Schulze answers these questions as follows:

The spleen produces, among other things, a hormone which, according to the terminology of Eppinger, belongs to the category of anti-autonoline and exerts an inhibitory effect upon the autonomic nervous system and, through this, upon the function of the lymphatic glands. If the spleen is removed, the inhibitory effect of the hormone is lost and the number of lymphocytes increases. This increase continues for an unlimited length of time and shows no tendency to abate. From this viewpoint the author attempts to explain his own observations.

Four cases are considered and their clinical histories presented with the blood findings determined after splenectomy. In an analysis of the blood picture it is noteworthy that the curve of the polynuclears lacks all conformity to law, i.e., that the removal of the spleen had no influence whatever. On the other hand the curves which represent the number of lymphocytes show a constant increase in the number of these cells, which it may be assumed was brought about by the removal of the spleen. Moreover it can be determined that in all four cases the relative increase was the same—toward the end of the first month the number of lymphocytes had increased two one-half times. This speaks against a temporary adaptation of the organism because, under such conditions, an increase in the numbers of the lymphocytes would not have continued so long nor have risen so markedly. The author believes he is warranted in the following explanation:

Normally the number of lymphocytes in 1 c.cm. is the same in practically all cases, and it may be assumed that the formation of lymphocytes is governed by two influences that are similar but oppose each other; on the one hand it is the result of a stimulation of the autonoline which favors the process, and, on the other hand, the influence of the anti-autonoline which inhibits the process. If after the removal of the spleen the number of lymphocytes increases, this fact indicates that the autonoline has the ascendancy, and the inhibitory process has ceased. If with the cessation of the inhibitory process other mechanical stimuli appear, the num-

ber of lymphocytes must increase still more. Such a stimulus is present in the organism in the form of the so-called passive leucocytosis of digestion. In two cases in which the author investigated the leucocytosis of digestion after a meat diet he found an increase in the percentage of the lymphocytes. From this he concludes that the mechanical stimulation of the lymph follicles, which normally has little influence in increasing the number of lymphocytes, in the absence of the spleen was the cause of an increase in the number of lymphocytes to nearly double.

With regard to the chemical nature of the hormone, nothing definite can be said at present, but we possess in atropine a substance whose effect is analogous to that of the hormone. The author attempted to bring about the effect of the missing hormone with atropine. Three injections of 0.0001, 0.00025, and 0.0004 gm. were made. The number of neutrophils remained unchanged, but that of the lymphocytes decreased considerably, i.e., the atropine exerted an inhibitory effect. If one takes into consideration the fact that atropine causes dilatation of the thoracic duct and that therefore an increase in the formative elements would be expected, the results obtained by the author become of particular interest. The hypothesis of Schulze that the removal of the spleen causes a disturbance of the internal secretion receives new support. Moreover, the author observed that in the case of a patient who suffered from constipation, the bowel movements became normal. In another case, in which there was little complaint of costiveness, movements of the bowels occurred twice a day. It appears that the lack of the hormone produced by the spleen causes an increase in peristalsis, such as Bayer has observed in two cases. The same hormone seems to have a definite influence also upon the thymus, since several investigators have observed a hyperplasia of the thymus after splenectomy and, vice versa, after the removal of the thymus a hyperplasia of the corpuscles of the spleen (Klose, Bayer, Matti).

The question of lymphocytosis after splenectomy has not only a theoretical but also a practical interest because, according to the theory of Schulze, it is to be assumed that the unchecked activity of the lymphatic glands may lead to their complete exhaustion, and it is possible that the lymphatic glands and the enlarged thymus may cause a condition which resembles status thymicolymphaticus. As yet we have no adequate explanation of the eosinophilia which appears a few months after splenectomy. The author leans toward the theory of Schulze in assuming that it is a phenomenon resulting from the disturbance of internal secretion.

In the future, the question of the advisability of splenectomy must be considered also in the light of this theory, and it is the problem of surgery to search for a conservative means of treating the spleen.

LUTHER (Z).

GYNECOLOGY

UTERUS

Schmitz, H.: The Technique of the Treatment of Carcinoma of the Cervix Uteri with a Combination of X-Rays and Radium Rays. *Am. J. Roentgenol.*, 1923, x, 219.

The success of the radiation treatment of deep cervical carcinomata depends on the solution of the problem of sending into the interior of the true pelvis a dose of rays which is lethal to carcinoma tissue but will not cause permanent injury to the healthy tissues and organs lying within the paths of the rays. This problem may be solved by determining:

1. The intensities of the X-rays and gamma rays of radium for the various distances. This is done by the ionization method, the results being plotted on a chart.

2. A biological unit of dose based on a biological reaction. This is designated as a 100 per cent erythema skin dose and is measured with an iontoquantimeter, that is, standardized. The same dose may be reproduced for all qualities of rays.

3. A lethal carcinoma dose expressed in value of the biological unit of dose. On an average this is from 110 to 130 per cent of an erythema skin dose.

4. A technique of treatment based upon the intensity of the rays, the biological unit of the radiation dose, and the lethal carcinoma dose.

H. W. FINK, M.D.

Masson, J. C.: Sarcoma of the Uterus. *Am. J. Obst. & Gynec.*, 1923, v, 345.

The author gives MacCallum's definition of sarcoma as a tumor arising from connective tissue and retaining most of the characteristics of connective tissue, but endowed with the power of invading and actively destroying adjacent structures and forming colonies of its own tissue in distant organs. The literature on the subject from 1860 to the present time is reviewed.

The most common pathologic groups are the round-cell, spindle-cell, giant-cell, and mixed-cell sarcomata. The spindle-cell sarcoma, the most common form found in the uterus, is often classified as myosarcoma or fibrosarcoma according to its origin. The rare forms found in the uterus are the lymphosarcoma, angioblastic sarcoma, chondrosarcoma, osteosarcoma, myxosarcoma, and ganglioma. Malignant decidual-cell sarcomata are not included in the primary sarcomata of the uterus.

Sarcomata of the uterine mucosa are usually polypoid, and for that reason all tissue removed from women with polypoid endometritis should be subjected to careful microscopic examination. Sarco-

mata usually begin in ulcerating polypi, and are much more malignant than myosarcomata.

Sarcomata as a group are more malignant than carcinomata, but the fibrosarcomata and myosarcomata are more solid and metastasize later. Many sarcomata originate in fibroids and may be encapsulated or diffuse. It is a disputed point whether or not such tumors are malignant from the beginning. Two distinct sarcomata or a sarcoma and a carcinoma may be present in the same uterus. An illustrative case is reported.

Various authors estimate the incidence of malignancy in fibroids as from 0.4 to 10 per cent. This is due to a difference in the standards of malignancy.

In a review of seventy-two cases of sarcoma and cellular fibromyoma made in the Clinic by Evans the malignancy was found to be in direct proportion to the number of mitotic figures present. From January 1, 1910, to January 1, 1923, 4,322 patients were operated on at the Mayo Clinic for uterine fibroids. Sarcoma cells were found in forty-four, approximately 1 per cent. Aschoff gives the same percentage from the Freiberg clinic.

The etiology is unknown. Chronic irritation and age are more important in carcinoma than in sarcoma.

The symptoms vary. In slowly growing tumors it is impossible to differentiate the condition from fibroids. Pain is more common than in carcinoma, and may come between as well as during the menstrual periods. Later symptoms are cachexia, hæmorrhages, and a foul vaginal discharge. Rapid growth of a tumor favors sarcoma. Only a competent pathologist can differentiate a necrotic, benign tumor from a sarcoma. Rapid reduction in size following radiation favors a diagnosis of sarcoma.

Metastases occur late and are rare. Local recurrence is much more frequent. Autopsy findings show that metastasis may take place by way of the blood or lymph channels. Perforation of the uterus with peritonitis has occurred. Hæmorrhage is common.

The treatment of sarcoma of the uterus is in a transitional stage. Surgery was formerly universal, but today radium and deep roentgen-ray therapy are often advised. Many remarkable cures as well as many failures are reported. The author advises early surgery followed by deep roentgen-ray therapy for the early cases, and radium followed by roentgen-ray treatment for the late cases. If the condition is inoperable, or if there is metastasis, only deep roentgen-ray treatment is indicated.

The author has seen a case of pulmonary embolism following the use of radium, and several cases of pelvic infection with abscess formation in cases of carcinoma.

If surgery is decided on, a modified Wertheim hysterectomy should be performed, the cervix being

first thoroughly cauterized if it is involved. Pre-operative transfusions are advisable if the hæmoglobin is 40 per cent or under.

The operative mortality in the series of cases reviewed was 4 per cent.

ADNEXAL AND PERI-UTERINE CONDITIONS

Ursprung, C. W.: Primary Carcinoma of the Fallopian Tube. *Hahneman. Month.*, 1923, lviii, 294.

The author reports a case of this rare condition. The patient, a woman 53 years old, complained of nervousness, fatigue, and loss of weight which had begun one year previously. Four months before operation, vaginal discharge began. The abdomen was tender, the uterus retroverted, and a mass was felt in the right pelvis. The red cell count was 3,846,000. The pre-operative diagnosis was ovarian cyst.

At operation the right tube was found distended with blood. It was 6 in. long and $1\frac{1}{2}$ in. in diameter and contained a broad-based papilloma. The tubes, ovaries, and fundus of the uterus were removed.

The author questions the necessity of removing the cervix. The prognosis is about the same as that of carcinoma of the cervix. After infiltration of the wall it is distinctly unfavorable. Of 132 women with this condition, only four survived the five-year postoperative period.

G. D. HAUCH, M.D.

Cumston, C. G.: The Reciprocal Relationship Between Appendicitis in the Female and Inflammation of the Right Adnexa (Rapports reciproques entre l'appendicite chez la femme et les annexites droites). *Rev. franç. de gynéc. et d'obst.*, 1923, xviii, 177.

When the cæcum in the female is raised, a fold of peritoneum from the appendix to the superior edge of the broad ligament may be found. In this fold are many lymphatic vessels extending from the appendix to the ovary and the tube. Consequently an infection of the appendix might very well travel to the adnexa. This peritoneal fold was first described by Clado twenty-five years ago, who called it the "appendiculo-ovarian ligament." It is found in 50 per cent of women.

It is evident that the appendix might be surrounded by an exudate coming from an inflammatory right tube or ovary, but the condition is not an appendicitis unless there is an inflammation of the appendix itself.

As a rule, adhesions are formed when there is associated inflammation of both the ovary or tube and the appendix and are particularly firm if the appendix is in the lower pelvis. The author has collected over 100 cases of appendicitis in which there was a chronic inflammatory process of the adnexa and appendectomy relieved all the symptoms.

When the appendix is in a state of chronic inflammation it is always exposed to new attacks because of its adhesions. The ovary also causes pain through adhesions, especially at the menstrual period. Too often these conditions are regarded as entirely of a genital nature and are treated conservatively with

no results, whereas an exact clinical history and operation would indicate the true source of the pain and ablation of the pathologic part would effect a cure.

Of first importance in the differential diagnosis between appendicitis and adnexal disease is pelvic peritonitis with its local manifestations such as perimetritis, perisalpingitis, and peri-oophoritis. In an incomplete examination a perimetritis or an adnexitis on the right side may be mistaken for appendicitis. In pelvic peritonitis a yellow vaginal discharge has been present for a long time, and micturition and defæcation have been painful. Abdominal pain accompanied by vomiting and hiccough appears suddenly, but has a different location from that of appendicitis. If the pain is bilateral or more severe on the left side, the infection is probable genital, notwithstanding the fact that the pain of appendicitis is occasionally in the left iliac fossa.

A general peritoneal irritation may occur in either case but is more frequent in appendicitis because the bacillus coli communis, which is so commonly found in appendicitis, provokes a diffuse peritoneal reaction with a purulent exudate, while the gonococcus, which plays the chief rôle in pelvic peritonitis, usually gives rise to circumscribed reactions of the peritoneum and rarely causes a true general peritonitis. In the beginning of appendicitis, percussion will reveal an exudate in the right iliac fossa and a vaginal examination will be negative. The author has never been able to determine the presence of inflammation of the appendix by bimanual palpation. The recrudescences of chronic pelvic peritonitis occur principally during menstruation.

Perforation of the appendix is usually preceded by acute attacks of appendicitis except in cases of gangrene from thrombosis or torsion. The pain of appendicitis begins near the umbilicus and later centers in the right iliac fossa, which never occurs in adnexal disease. In gangrene of the appendix, local pain may be completely absent; in the female such a condition suggests a light attack of adnexitis, but such an error would soon be discovered because of the symptoms of a fulminant peritonitis.

The vomiting accompanying acute appendicitis with or without perforation is spontaneous and continuous, and the pulse small, thready, and rapid; a rapid rise in the temperature is preceded by a chill. Tympanitis is very marked; frequent signs are a slight cyanosis and a cold perspiration. This clinical picture is never found in infectious processes of the adnexa. Frequently the temperature remains high for several days. New rises in the temperature indicate extension of the process, but a fall might be the indication of a grave infection against which the body cannot react. This is probably the case when there is a rise in the pulse rate with a fall in the temperature.

In puerperal metritis the symptoms may be equally violent, but a properly taken history will indicate the correct diagnosis. Moreover, the general condition is not greatly affected. The upper

abdomen is always soft and without tenderness upon pressure and bimanual palpation. As the exudate will be situated in the perimetral tissue and will not rise higher than the upper edge of the true pelvis, there will always be a zone of percussion between it and the zone of exudate in appendicitis. An appendicular abscess varies in situation according to the situation and length of the appendix.

The symptoms of suppurative pelvic peritonitis are never as acute as those of acute appendicitis. The history also discloses the fact that the patient has not been in good health, has had a discharge for some time, or that her symptoms date from a visit to a midwife. There is usually a dysuria associated with the signs of local peritoneal irritation, and little if any fever.

The peri-appendicular exudate, if very old, may be easily confused with perimetric exudate, especially if it extends into the broad ligament toward the uterus.

A retro-uterine hæmatocele following a ruptured tubal pregnancy may simulate pelvic appendicitis, but in the latter there is always tenderness over McBurney's point and no pain in the ovarian region, the cervix is not softened, and the uterus is not enlarged. Pelvic appendicitis may simulate a twisted pedicle, but in the latter a tumor may usually be outlined and fever at the onset is rare.

The mortality of pelvic appendicitis is probably no greater than that of the iliac type, but the symptoms are usually more severe and the indications for intervention are more urgent.

There is some question as to whether in pregnancy the ligament of Clado is put under tension or is relaxed, but there is evidence that pregnancy acts mechanically to favor the recurrence of attacks of appendicitis in women who have adhesions between the appendix and the genital organs. It is possible that adhesions between the appendix and the tube may be a cause of tubal pregnancy.

ROSCOE JEPSON, M.D.

Cotte, G., and Jezditch, D.: Pelvic Varicocele
(Contribution à l'étude du varicocèle pelvien).
Gynéc. et obst., 1923, viii, 205.

The authors state that although pelvic varicocele was described by Richet and Devalz more than sixty years ago, it has not received the recognition it deserves. In 650 laparotomies they found seven typical cases, but only two of these could have been diagnosed before operation. On the other hand, in two recent cases diagnosed as pelvic varicocele the condition was not found at operation. Secondary varicocele does not require any individual clinical or therapeutic attention as it will disappear after the causative factor has been removed.

Pelvic varicocele is usually found in women in the early thirties who have had several pregnancies and more or less pelvic congestion since puberty. The symptoms are pain in the lower abdomen and around the kidneys which extends down the legs, a sense of weight in the pelvis, and more or less vesico-

rectal tenesmus. Walking, standing, defæcation, and sexual intercourse increase the symptoms. They become more severe also just before the menstrual period but are relieved by menstruation. With irritation of the clitoris there is increased sexual desire but at the same time there is true dyspareunia. The menstrual flow is increased and prolonged and often appears twice monthly. In many cases there is a watery leucorrhœa.

Upon examination, the uterus is found to be enlarged and usually in retroversion. A pathognomonic sign of the condition is a soft, compressible mass in the lateral sides of the cul-de-sac which is noted when the patient is standing but disappears when the recumbent position is assumed.

Of the authors' seven cases, only two were operated upon more than two years ago. In every case the symptoms disappeared after resection of the utero-ovarian veins.

While medication may relieve the symptoms for a time, the only cure is operative interference. The operation of choice is resection and ligation of the veins in the lumbo-ovarian ligament. In the authors' opinion, this will not harm the ovarian function. The position of the uterus should be corrected but nothing should be done to the tubes or ovaries unless they are diseased. ROSCOE JEPSON, M.D.

MISCELLANEOUS

Curtis, A. H.: The Management of the Female Urinary Bladder After Operation and During Pregnancy: A Further Study of Residual Urine in Its Bearing on Urinary Tract Disturbances. *J. Am. M. Ass.*, 1923, lxxx, 1126.

The author emphasizes the fact that the normal bladder is highly resistant to infection and that virulent bacteria tend to do no harm unless there is the added complication of residual urine. It is this factor that accounts for many otherwise inexplicable infections of the urinary tract following operation and developing during pregnancy. Without catheterization few infections result, but it is often necessary to catheterize to prevent over-distention. Residual urine does not usually follow one or two catheterizations, but is very frequent when catheterization is done repeatedly.

The author's plan of treatment was studied in 1,595 female patients subjected to major surgical operations, excluding operations involving the genito-urinary tract and conditions which might involve it. Sixty-six per cent of the patients required no catheterization, 11 per cent required it once, 5 per cent required it twice, and 17 per cent required it three or more times. Of the 66 per cent not requiring catheterization several were tested for residual urine but this was found in less than 1 per cent and in none was there any urinary tract infection. Of the 11 per cent (187 patients) requiring one catheterization for distention, residual urine was found in 6 per cent, but in the absence of infection disappeared promptly. Of the eighty-eight pa-

tients catheterized twice, 27 per cent had residual urine and a few had slight infection which disappeared more or less promptly.

Of the 269 patients who were catheterized many times, residual urine was found in 64 per cent. Return of the power of complete evacuation of the bladder usually requires from four to eight days, the amount of residual urine decreasing gradually.

In the plan of treatment followed by the author the catheter is used only when necessary for the relief of distention. If the catheter has been employed only once or twice, no further treatment is indicated unless symptoms of retention or infection appear. If more than two catheterizations have been necessary the patient is catheterized daily immediately after one urination until the residual urine has disappeared. Residual urine of less than 1 oz. is considered normal if free from pus. Hexamethylen-amin is given in quantities sufficient to reveal formaldehyde in the urine.

In the author's opinion many of the cases of pyelitis in pregnancy may be due to ascending infection from residual urine in the bladder. Many women with this condition give a history of having accustomed themselves to resist voiding for long periods of time. Others mention inability to empty the bladder completely after the onset of pregnancy or after the uterus rises out of the pelvis. In still other cases the presence of a temporary cystocele may be responsible.

The laboratory examinations showed scattered staphylococci and diphtheroid bacilli in the once catheterized patient, while in the urine of those catheterized repeatedly, colonies of bacilli of the colon group were found in addition. The patient with residual urine showed the greatest number of leucocytes and bacteria but these disappeared with the disappearance of the residual urine.

The conclusions drawn by the author are as follows:

1. The catheter should be used when necessary to relieve distention both because of the pain and because if the distention is not relieved there is danger of the destruction of kidney tissue by back-pressure.

2. Postoperative patients not requiring catheterization quickly return to normal without urinary tract infection even though some residual urine may be present.

3. Patients who require repeated catheterizations will have no infection provided they have a daily test for residual urine until this is no longer present.

4. It is dangerous to stop the use of the catheter suddenly with the advent of spontaneous micturition because this is usually followed by a period of several days of residual urine which, if contaminated, is the chief cause of postoperative cystitis.

5. All pregnant women who show undue frequency of urination or whose urine contains pus should be watched for residual urine as a precaution against the pyelitis of pregnancy.

ROSCOE JEPSON, M.D.

McGlinn, J. A.: The Treatment of Gonorrhœa in Women. *Therap. Gaz.*, 1923, 3.s. xxxix, 229.

Acute cases of gonorrhœa are seen by the physician relatively seldom. The author saw only one such case during the last year at the venereal clinic of the Philadelphia General Hospital. In the acute stage the diagnosis is easy and treatment should be begun immediately. The primary source of infection is always in the cervix and for this reason douches which may relieve congestion will not destroy the organisms. Since all germicides will do more harm than good, he advises simple saline solution for the vagina. Of chief importance in the treatment is the cervix. This should be first cleaned with sodium bicarbonate or hypochlorite solution and then dried with hot air (dental cavity drier) or cotton swabs, with care not to traumatize the canal. The author then applies a 1:200 warm aniline gentian-violet solution which penetrates deeply and kills or prevents the growth of the gonococcus. He considers the use of bichloride of mercury and lysol pernicious.

In order to change the conditions favoring the growth of the gonococcus a suppository formed from half a cake of yeast is inserted into the vagina each night. After the cervix and vagina are free from gonococci the persisting discharge, which McGlinn considers due to a change in the vaginal flora, is stopped by keeping the vagina dry. This he accomplishes by filling the vagina at night with Fuller's earth and washing it out again in the morning.

McGlinn does not find that the urethra and glands of Bartholin become infected as frequently as is to be assumed from most textbooks. For infection of the urethra and Skene's glands he advocates argyrol or protargol. When Bartholin's glands are infected it will be necessary to open the canal and treat the tract directly.

The difficulties in treating chronic cases are emphasized. Repeated examinations after several menstruations must be made. For chronic infection of the cervix McGlinn favors the actual cautery with the temperature high enough to produce a slough but not a char. Postoperative care must be given to prevent stenosis. Skene's glands may be laid open and cauterized with a wire or dissected out. If radium is used for chronic infection of the cervix it should be employed in small repeated doses. Sturmdorff's tracheloplasty may also be done.

In conclusion the author emphasizes the importance of not overtreating acute cases and the futility of local treatment in chronic cases.

ROSCOE JEPSON, M.D.

Maxwell, A. F.: The Results of Radium in Gynecology. *California State J. M.*, 1923, xxi, 155.

In the beginning, radio-activity was accepted by the medical profession almost universally as a panacea for all neoplastic diseases. Today the tendency is toward a sane evaluation, the application of radio-activity being clearly defined.

The material in this study was obtained from the Women's Clinic exclusively and covered the years 1916 to 1921 inclusive.

There were 108 cases of carcinoma of the cervix to ten of carcinoma of the body. Briefly the technique consisted in the use of the bare tube containing either the salt or the emanation screened by 1 mm. of silver and 1 mm. of brass and encased in sterile rubber. Crossfire was obtained by placing capsules in the lower uterine cavity and vagina directly in contact with the cervix and parametrium. Bare tubes were tried with but very little success except in cases of vaginal metastasis. Gauze strips and a rubber dam were packed firmly into the vagina to protect the bladder and rectum and the latter were kept empty by catheterization and enemas. The average dosage was from 3,000 to 5,000 mgm. or mc.-hrs. given in a single dose or, more often, 2,000 mc.-hrs., and repeated in forty-eight to seventy-two hours, 100 to 150 mc. being used.

For a suitable working basis the cases were classified as early and operable and borderline and inoperable. Of 108 cases of cervical carcinoma twenty-three were recurrences and eighty-five were primary. Of the latter, eighty-two were given radium treatment only, and three were operated upon later. Of the forty-two women with inoperable carcinoma, thirty-one (66 per cent) succumbed within a year and four have lived two to three years and have shown marked improvement. In one of the latter the condition was so altered by the radiation that an operation was performed subsequently and the patient is free from signs of malignancy four years later. Intense postoperative raying was done also. Ten per cent of the patients in the terminal stages have survived over three years and these years were made bearable. Of those with a borderline condition 50 per cent are alive, some of them as long as two years after the treatment. Three were so benefited that operation was rendered possible. In this type of case raying is more satisfactory than surgery.

Bumm reports a five-year cure following radium treatment in 21 per cent of a series of twenty-two cases. Two of the very early cases presented definite contra-indications to operation; one patient died a year after raying without signs of carcinoma; the other shows no evidence of malignancy after three years.

The great majority of recurrences are not recurrences but a proliferation of tissue not removed at the time of operation. Fifteen of twenty-three women with such a condition are dead and one of the five who are living is clinically well after three and one-half years. Two of five women radiated prophylactically after hysterectomy are well after five and six years respectively.

Carcinoma of the body of the uterus is treated as a surgical condition. Five women with this condition died of recurrence and five are living, three as long as four years after treatment. Six cases of carcinoma of the ovary, two of carcinoma of the clitoris, and one of carcinoma of the urethra have been treated without apparent result.

The hæmorrhages associated with adolescence and fibrosis of the uterus are effectively controlled by radium. In cases of myomata and fibroid polyps the treatment is now restricted to growths confined to the pelvis in women near the menopause and in whom submucous polypoid tumors, malignancy, and inflammatory pelvic reaction can be excluded. Endocervicitis was alleviated in all four cases. One case of chorionepithelioma received 3,420 mc.-hrs. of treatment without any apparent effect on the growth.

In summarizing, the author states that radium has a definite place in gynecological therapy. Death is postponed. Operable cases should be operated upon after radiation. Cancer of the uterine body is surgical. The bleeding myomata (selected cases), the myopathies, and some of the leucorrhœal discharges can be satisfactorily controlled with radium.

A. JAMES LARKIN, M.D.

OBSTETRICS

PREGNANCY AND ITS COMPLICATIONS

Speidel, E.: *A Routine Treatment for Hyperemesis Gravidarum.* *Am. J. Obst. & Gynec.*, 1923, v, 481.

It is of great importance in instituting the routine treatment that the patient's husband and family be impressed with the fact that the condition is very serious and that a favorable outcome, even the patient's life, depends upon their co-operation.

The patient's room should be flooded with sunshine and fresh air, and the family and husband should be excluded, especially the husband, whose presence at once arouses the sex instinct in the patient and reflexly causes emesis. The administration of food, and even of water, by mouth should be stopped at once.

In the author's cases the daily routine is begun at 7 a.m. by irrigating the large bowel with a gallon of warm solution containing two rounded tablespoonfuls of sodium bicarbonate. The solution is introduced slowly through a No. 20 catheter, and when the patient strains she is allowed to expel it alongside the catheter. More solution is then run in and when the final pint has been introduced the catheter is withdrawn. It is hoped that the patient will retain and absorb a considerable part of the solution as in this way fluid will be supplied to the body and the acidosis will be somewhat combated by the sodium bicarbonate.

At 8 and 12 a.m. and 4 and 8 p.m., 250 c.cm. of the feeding solution are slowly introduced into the rectum through a No. 12 catheter with a glass funnel attached, the patient lying in the left lateral position with the hips elevated and being kept in that position for half an hour after the introduction of the fluid.

The feeding solution, which is warmed to body temperature before each introduction, is composed of 50 gm. of glucose, 100 c.cm. of trophine or panopepton, 20 gm. of sodium bicarbonate, and enough water to make 1,000 c.cm. This amount is sufficient for one day. Sixty grams of sodium bromide are added to each dose of the solution just before its introduction, and if the patient is restless, 30 gr. of chloral are dissolved in the 8 p.m. feeding. As the patient improves, the amount of sodium bromide is gradually reduced.

From the beginning, an ampoule of corpus luteum extract is administered once or twice daily intramuscularly or intravenously until erythema indicates that sufficient has been given.

After three days of this régime the treatment is supplemented by the intravenous administration of 500 c.cm. of sterile 10 per cent glucose solution. The glucose relieves the carbohydrate deficiency

caused by the demands of the fetus upon the mother and the lack of it in the diet that she has been able to take. It will be absorbed directly by the liver and will aid in regenerating the damaged liver cells if the destruction has not gone too far.

The rectal treatments are continued for the succeeding days, and on the sixth day a second intravenous injection of glucose is given. The rectal treatments being continued, gastric lavage is practiced on the eighth day with $\frac{1}{2}$ gal. of sodium bicarbonate solution containing a rounded tablespoonful of the soda, and at the end of the lavage $\frac{1}{2}$ pt. of the solution is poured into the stomach through the tube. This is generally retained.

The administration of food is begun tentatively on the ninth day, the patient being given a Holland rusk or shredded wheat biscuit twice a day.

The cereals are slowly added in the succeeding days, the rectal feedings being gradually reduced in number as the patient is able to retain the food taken by mouth.

This routine includes well-recognized measures in the treatment of hyperemesis and forms the main basis for the treatment of every case. Additional measures are used in conjunction with it, if necessary. Adrenalin solution, advocated by some writers, may supplement or take the place of the corpus luteum solution, or the latest innovation, feeding by the duodenal tube as advocated by Paddock, may be added to the treatment.

E. L. CORNELL, M.D.

Stroganoff: *My Improved Method for the Prophylactic Treatment of Eclampsia.* *J. Obst. & Gynec. Brit. Emp.*, 1923, xxx, 1.

Stroganoff has had a wide experience with eclampsia and described a method of treating it about twenty-five years ago. At first his method had a mortality of 1 to 2 per cent, but in the last twelve years he has so improved it that he is nearly always able to save the mother and has greatly reduced the infant mortality. He states that in this condition toxins formed in the mother's blood irritate the central nervous system, and particularly the vasomotor center. This irritation causes a spasm of the blood vessels and an increase in the blood pressure accompanied by headache, changes in the eyesight and hearing, and epigastric pain which terminate in convulsions with loss of consciousness. The spasm of the blood vessels of the kidneys causes a sharp change from oliguria to anuria, and albumin and casts appear in the urine. The toxic elements causing the irritation are the syncytial masses which enter the mother's veins. The fact that eclampsia appears more often during delivery seems to indicate that

the syncytial cells enter the blood during labor and that their toxicity is increased by the labor pains. Immediate delivery appears to be of little aid in counteracting this condition and may often be harmful.

In the treatment efforts must be made first to prevent convulsions as these increase the amount of toxins in the blood. Elimination of the toxins through the skin and kidneys must then be stimulated.

Next in importance to the arrest of the convulsions is the combined administration of morphine, chloral hydrate, and chloroform. These drugs calm the patient, cause sleep, and prevent spasm of the blood vessels. To reduce the concentration of the toxins in the blood, venesection and the introduction of fluid are beneficial.

In the other care of the patient all causes of irritation must be removed. Light, noise, and manipulations must be avoided. Examinations should be done under chloroform.

The narcotics Stroganoff administers in the following order:

At the beginning of the treatment a hypodermic injection of $\frac{1}{4}$ gr. of morphine hydrochloride is given under chloroform and repeated after three hours. At the end of one hour 30 gr. of chloral hydrate in 200 to 250 c.cm. of saline solution are given by rectum or, if the patient is conscious, by mouth with 100 c.cm. of milk. This is repeated in seven hours, thirteen hours, and twenty-one hours. It may be administered without chloroform if there have been no convulsions or prodromata for twelve hours. Thus the patient receives from 75 to 135 gr. of chloral hydrate and from $\frac{1}{3}$ to $\frac{3}{4}$ gr. of morphine in one day, together with 500 c.cm. of milk and 500 c.cm. of saline solution. If forerunners of a convulsion, such as increased headache, increased blood pressure, twitchings, and restlessness are evident, chloroform is indicated; the minimum dose is 1.0 to 1.5 c.cm.

If the patient has been free from convulsions for twenty-four hours and has not yet been delivered, she is given chloral hydrate every eight hours. The prognosis is favorable if convulsions do not appear for twelve hours, and much more favorable if they remain absent for twenty-four hours.

Stroganoff reports 230 cases of eclampsia with four deaths of moribund patients, a mortality of 1.7 per cent. There were no deaths in cases which had not been neglected.

H. W. FINK, M.D.

Brindeau: Fibromata Complicated by Pregnancy
(Les fibromes compliqués de grossesse). *Presse méd.*, Par., 1923, xxxi, 385.

The author limits his study to fibromata complicated by pregnancy and does not take up their relation to parturition or the puerperium. Cases of fibroma complicated by pregnancy are relatively rare. In 1,000 of the author's cases of fibroma larger than an egg this complication occurred in only eight.

The most common site of fibromata present during pregnancy is the body of the uterus. Usually they are subserous, occasionally interstitial, and very rarely submucous. As a rule they contain some fibrous tissue, but are made up for the most part of uterine muscle. The interstitial and submucous fibromata have the most marked growth because of the hypertrophy of the muscle containing them.

The fibromata soften with the softening of the uterus, and the pedunculated fibromata which fall into the pouch of Douglas frequently have the consistency of cysts. When a fibroma is situated in the fundus it rises with the uterus, but when it is situated at one of the horns, the uterus usually follows the tumor. Retroflexion of the uterus may be caused by a fibroma on its anterior surface or by traction or under-development when the fibroma is on the posterior wall.

Degeneration of fibromata is much more common during pregnancy than at other times, the most common change being what the English call "red degeneration." When this has occurred the tumor is soft and usually yellowish-red. Microscopic examination of the muscle fibers shows zones of necrobiosis and marked fatty degeneration.

The difficulties in the diagnosis are numerous. In certain cases a tumor on the anterior wall of the uterus may seem to disappear during the course of pregnancy. Torsion of a pedicle or necrobiosis of a fibroma may cause such symptoms as pain, vomiting, or fever suggesting appendicitis, pyelonephritis, or ectopic pregnancy. Other complications may be caused by compression of the bladder, rectum, or ureters.

If complications arise, no attempt at an exploratory laparotomy should be made. In 60 per cent of the cases a single fibroma can be excised without interrupting the pregnancy. In cases of multiple submerged fibromata a subtotal hysterectomy should be performed. If the patient is at term nothing need be done unless labor is obstructed or there is elevation of the temperature. If the temperature rises, hysterectomy is indicated to prevent infection of the fibroma and the peritoneum.

If the fibroma fills the pouch of Douglas a caesarean section should be performed just before the beginning of labor. After delivery, a myomectomy should be done if possible; otherwise a hysterectomy.

In twenty-seven cases operated upon by the author there was only one death and this was due to pneumonia. Of seven cases operated upon before term the pregnancy was interrupted in only one.

ROSCOE JEPSON, M.D.

Brady, L.: A Clinical Study of Ectopic Pregnancy.
Bull. Johns Hopkins Hosp., Balt., 1923, xxxiv, 152.

The average age of fifty women operated upon for ectopic pregnancy at the Johns Hopkins Hospital, during the years from 1917 to 1922 was 26 years. The two oldest were 39 and 38 years of age and the two youngest 17 and 19 years. There were thirty-three white and seventeen colored women. As only

one colored patient is admitted to the hospital to three white patients, it is evident that ectopic gestation occurs somewhat more frequently among the negroes.

The ectopic pregnancy was the first pregnancy in only six cases. A previous pelvic infection was ruled out positively in only seven cases (14 per cent). In twenty-four of the fifty cases there was a history of missed menstrual periods, usually one or two; the largest number missed was three. Irregular uterine bleeding had been present in thirty-seven cases and absent in thirteen. The duration of the metrorrhagia varied from a few days to five months; the average was one month.

There was a history of pain in every case except two. In thirty-eight, the pain was severe, in ten slight. Fainting occurred in only three cases: two cases of tubal rupture and one case of tubal abortion. Vomiting occurred in nine (18 per cent).

The average temperature was 99.4 degrees F. Nineteen patients had a temperature above 99 degrees and six a temperature of 101 degrees or higher. In none of the cases was the temperature below 98 degrees.

The average pulse rate was 104. Sixty-six per cent of the patients had a pulse rate above 90. On admission, the pulse rate of one woman was 150, that of two others 140, and that of six others 120.

A striking change in the respiratory rate occurred in only one case, that of a woman in profound shock who, on admission, was breathing only six times to the minute.

The leucocyte count averaged 11,000. In sixteen instances the count was above 10,000. The highest counts recorded were 25,000, 24,000, and 20,000. The average hæmoglobin content was 61 per cent. In fourteen cases it was below 50 per cent; in seven, below 40 per cent; and in three, below 30 per cent (28, 27, and 24 per cent). The blood pressure was below 110 in nine cases. The low readings were 85 systolic with 50 diastolic, and 75 systolic with 55 diastolic.

The general condition was recorded as good in fifteen cases, as fair in thirteen, as poor in five, and as critical in three. In the other histories there was no record on this point; presumably the women were in good or at least fair condition.

In nine cases the abdomen was distended. Tenderness was present in forty-two cases, but muscle spasm in only nine. Percussion revealed shifting dullness in the flanks in four cases. In no instance was there bluish discoloration of the umbilicus.

Vaginal bleeding was present at the time of examination in twenty-seven cases. Pelvic tenderness was present in all except seven. In thirty it was moderate, and in thirteen intense.

In thirty-six cases (72 per cent) the correct diagnosis was made before operation.

The tube and ovary were removed in thirty cases, and the tube alone in nineteen cases. In the case of apical pregnancy only an exploratory laparotomy was done.

The convalescence was uneventful in forty cases and stormy in ten. Abdominal distention occurred in six cases and prolonged vomiting in five.

Twelve infusions and seven transfusions were given. As a rule the infusions were not begun before the operation because it was thought that raising the blood pressure would cause further bleeding into the abdominal cavity.

Only when blood crepitus was felt was the pelvic examination of much aid in determining whether the pregnancy had ruptured or not. The abdominal examination and the patient's general condition and history were of greater importance.

All of the patients made a complete recovery.

On reviewing earlier records of the hospital it was found that an operation for ruptured extra-uterine pregnancy was performed in February, 1913. The sac contained a badly macerated fetus and 100 c.cm. of very foul pus. Although abdominal and pelvic drainage were both used, the patient died of general peritonitis. Between February, 1913, and September, 1922, there were seventy-one consecutive successful operations.

C. H. DAVIS, M.D.

Forsyth, J. A. C.: A Case of Erosion of the Rectum by an Ectopic Placenta. *Lancet*, 1923, cciv, 795.

The author reports a case of tubal abortion with erosion through the rectal wall. Considerable rectal bleeding occurred. At operation the ruptured tube with the mole was found in the pouch of Douglas. The mole contained a fetus a few millimeters long. The pouch of Douglas was closed and a temporary colostomy was made. The patient recovered. The colostomy was closed on the fifty-ninth day.

ROSCOE JEPSON, M.D.

LABOR AND ITS COMPLICATIONS

Pouliot, L., and Truchard, J.: A Critical Review of Fifty-Three Cases of Rupture of the Uterus Following the Use of Hypophyseal Preparations (Exam critique de cinquante-trois observations de rupture utérine après emploi de préparations hypophysaires). *Rev. franç. de gynéc. et obst.*, 1923, xviii, 145.

From a review of fifty-three cases of rupture of the uterus following the use of hypophyseal preparations, which were collected from the literature by Rucker and Haskell, the authors come to the conclusion that pituitrin should be used only when the pelvis is normal, the longitudinally presented fetus is completely engaged, the cervix is soft, the lower segment is effaced, the uterine musculature is unweakened by frequent pregnancies or cesarean section, and cardiac and renal complications are absent.

Polak, J. O.: Dry Labor. *Am. J. Obst. & Gynec.*, 1923, v, 488.

The author divides cases of dry labor into three classes. The first class are those in which rupture of the membranes occurs before labor begins.

When the soft parts are prepared, the head is in the brim, and the head and pelvis are presumably normal, nothing should be done as neither the child nor the mother suffers any injury from ruptured membranes so long as the mother is not inactive and the cervix is not infected by repeated vaginal examinations or manipulation. The egress of the fluid is more or less effectively blocked by the ball-valve action of the head. Spontaneous labor will usually occur in due time and should be well established before any adjunct to favor dilation is considered. Surgical interference is justifiable only in the cases of old primiparæ in which the life of the child is of paramount importance from a legal standpoint.

The second class of cases of dry labor are those in which the membranes rupture at the beginning of labor, the cervix is undilated, the head or breech is engaged or engageable, and the pelvis is presumably normal. The labor should be allowed to progress for several hours or until the pains are strong and regular before resort is had to measures to aid in the dilatation of the cervix. A careful examination should then be made to determine the condition of the cervix and the progress of the labor. If the cervix is thinned out, morphine, scopolamine, and time will almost always effect complete dilatation even when the external os is no larger than 2 or 3 cm. On the other hand, if the cervical rim is thick and unyielding, the patient should be placed in the Sims position after proper surgical preparation of the vulvar orifice, the perineum retracted with a Sims speculum, and the vagina packed with boiled cotton batting moistened and wrung out in a weak solution of boroglyceride, one part to eight of sterile water. The tampon should be closely applied to the fornices and over the stretched cervix, and the vagina packed firmly. This will excite uterine contractions, keep the cervix in close apposition to the presenting part, soften the cervix, and smooth out the canal. A hypodermic of morphine, gr. $\frac{1}{4}$, and scopolamine, gr. $\frac{1}{100}$, given at the completion of the packing, will give the patient rest between pains and relax the cervical spasm. In a few hours, dilation will be completed, the plug will be expelled, and the presenting part will be pushed down to the pelvic floor. Long experience has convinced the author that all the other methods of artificially dilating the cervix are inferior and fraught with greater danger. In the method described, dilation is obtained without trauma and secretions are not dammed up behind the plug as is the case when the bag is used.

In the third class of cases of dry labor in which there is relative disproportion between the head and the pelvis, too much time must not be wasted on the management of the soft-part dystocia. Because of the interference with the feto-placental circulation and the cerebral pressure, the child's chances are lessened materially by a prolonged and ineffectual test. If progressive advance is not demonstrated, the labor should not be permitted to con-

tinue longer than twelve hours as the dangers of sepsis are constantly increasing and late operations are attended by a high mortality. It is in these cases that section is to be considered. As all dry labors are potentially infected, the classical operation is not the procedure of choice.

EDWARD L. CORNELL, M.D.

PUERPERIUM AND ITS COMPLICATIONS

Moeller, W.: Mechanical Ileus During the Puerperium (Mechanischer Ileus im Wochenbett). *Monatsschr. f. Geburtsh. u. Gynaekol.*, 1922, lix, 273.

It would appear that pregnancy, childbirth, and the puerperium are conditions favoring mechanical ileus, but this is not the case. The statistics collected by Essen-Moeller include only about 100 cases, and to these only ten more can be added from the literature: It is probable that in some cases the growing uterus may stretch or even tear adhesions which were present before the pregnancy began. This assumption is supported by Moeller's new case, in which a band extended from the right inguinal region and strangulated the flexure at its base.

Between the ages of 15 and 50 years, the woman's period of child-bearing, ileus is considerably more common in man, especially the type due to bands and adhesions. This is the more remarkable for the reason that in this period and later, when the condition occurs with about equal frequency in both sexes, the morbidity of diseases of the gall-bladder and adnexa is greatest and gall-stones are considerably more common in the female than the male. The fact that of twelve females with ileus who were between the ages of 15 and 50 years, seven had not passed through childbirth, again indicates that pregnancy and childbirth prevent the development of band and adhesion ileus.

RUGE (Z).

Watson, B. P.: The Treatment of Puerperal Infection; with a Discussion. *Brit. M. J.*, 1923, i, 505, 511.

Although in recent years our conception of puerperal infection has undergone a marked change, old methods of treatment still persist. The author states that it is now time to realize that the general principles of pathology have a universal application and that the details of treatment founded upon them should require only slight modification to meet the different anatomical and physiological conditions present in any region of the body.

Much has been learned during recent years regarding the mode of invasion of infective organisms and their spread from a local focus such as the infected puerperal uterus. The organisms concerned principally in puerperal infections gain ready access to the blood stream but ordinarily do not survive. While the majority of infections of the puerperal uterus remain localized, in some cases extension occurs by continuity with a spreading inflammation of the mucosa which involves the tubes with or without pus formation. If the lymph

stream is invaded, a general peritonitis may develop, but as a rule an inflammatory reaction in the cellular tissue of the broad ligaments and tubes, a pelvic cellulitis, results. This may or may not go on to abscess formation, but nearly always remains localized in the pelvis. In some cases, however, thrombus formation and invasion of the general blood stream follows.

After extrapelvic causes of fever in the puerperium have been excluded, it is permissible to make a gentle bimanual examination. In an early case little will be found and further exploration may cause great injury. Curettage will disturb the raw surface and open new spaces for infection. As portions of placenta do little harm in such a uterus, the zeal with which efforts are sometimes made to reach them is often very injurious. Even the intra-uterine douche is contra-indicated. Recent experience in the treatment of infected wounds has shown that the most important factor is free drainage, and the fewer antiseptics and the less the interference the better. In the infected uterus the cervical canal is always patulous and drainage is assured. It may be helped by placing the patient in Fowler's position and administering such drugs as ergot, pituitrin, and quinine. An ice bag may be applied to the abdomen. A liquid diet should be given, the bowels kept open, and blood cultures made at intervals.

The great majority of puerperal infections will respond to this form of treatment. If cellulitis develops, it will be evident in three or four days. A pus tube will be noted a little later. If a pus sac localizes in the pelvis, it can be drained through the vagina. A pus tube should be removed only after the temperature has been normal for some time.

In cases of true bacteræmia the results of intravenous therapy with magnesium sulphate, eusol, salvarsan, and sera have been found indifferent.

H. W. FINK, M.D.

Wagner, A.: The Use of Continuous Drip Irrigation in Puerperal Fever (Zur Anwendung der permanenten Tropfenirrigation beim Puerperalfieber). *Deutsche med. Wchnschr.*, 1922, xlviii, 1577.

Continuous irrigation in puerperal fever should be more widely used by the general practitioner. In very severe cases with septic thrombophlebitis, etc., a marked effect cannot be expected, but in the many cases of puerperal wound intoxication and local infection of the perineum, vagina, portio, or endometrium this treatment is of great benefit. It is not intended, however, to take the place of operative procedures.

Continuous irrigation is best carried out as drip irrigation by means of a Martin glass globe. For the disinfectant, the author prefers hydrogen peroxide, but states that aluminium acetate, boric acid, potassium permanganate, hypertonic salt solution, and Dakin's solution are also effective. Strong disinfectants are not desirable because of their irritating effect. As the result of the irrigation advo-

cated, the disagreeable odor ceases, the wound becomes clean, the temperature falls, the chills cease, the pain decreases, and the general condition improves.

SONNTAG (Z).

Nyulasy, A. J.: Puerperal Infection; Ligation or Excision of Veins. *Med. J. Australia*, 1923, i, 499.

The author reports a remarkable recovery following ligation of the ovarian veins close to the pelvic wall in a case showing septic infection coming on with no evidence of thrombosis five weeks after delivery. The good results may have been due to: (1) occlusion of the veins preventing the escape of the poison from the uterus; (2) the cutting off of the lymphatics; or (3) a modification of the Bier congestion treatment.

In three other cases ligation was probably done too late to obtain the best results.

For all cases of puerperal infection in which there are no definite foci of infection and the uterus is clean, the author advises laparotomy with ligation of the ovarian veins, excision of thrombosed vessels, or hysterectomy.

Two cases of excision of the ovarian veins are reported. In one, which was diagnosed as appendicitis, the ovarian vein was found to be thrombosed ten days after delivery. The other was a case of frank puerperal septicæmia with streptococci in the blood; operation revealed a right salpingitis with thrombosis of the right ovarian vein.

WILLIAM B. CAMPBELL, M.D.

Baldwin, J. F.: The Surgical Treatment of Certain Puerperal Infections. *Am. J. Obst. & Gynec.*, 1923, v, 499.

The class of cases considered in this discussion includes the infections of the pelvic veins. Though the infection may enter at any point, a phlebitis of the veins of the broad ligaments may extend into all of the pelvic veins, but is most serious when it involves the ovarian veins since these discharge on the right side directly into the vena cava, and on the left side into the vena cava through the renal vein. If the involvement does not result in a purulent breaking down of the blood clot, resolution takes place with prompt amelioration of symptoms and recovery, as is seen so generally in that form of phlebitis so well known under the old name "milk leg" or "phlegmasia alba dolens." If infection takes place, the disease progresses and unless there is intervention, death is inevitable.

In this type of infection the initial symptoms are identical with those of the less serious types, but do not subside. As a rule there will be repeated chills, wide excursions of temperature, much sweating, great prostration, rapidly developing anæmia, and, if the clot breaks loose and goes to the heart, the usual symptoms of infected embolism.

Vaginal examination reveals failure of normal involution of the uterus and marked tenderness on one or both sides or behind the cervix. Sooner or later a mass can be felt at one of these points.

This may be well marked, or may suggest a cord passing across. The author has never felt the worm-like mass mentioned by Williams. While in almost all cases a careful examination will give evidence of infected veins, it is possible that in some cases such veins may be out of reach and the diagnosis can be made only from the history and symptoms.

The prognosis is practically hopeless unless the infection is of very limited extent. These cases are usually chronic, but occasionally a fulminant case appears in which death is inevitable. As in tuberculous meningitis, if the patient does not die, it is much more reasonable to assume that a mistake has been made in the diagnosis than that recovery has occurred.

Baldwin's statistics show forty-seven recoveries in sixty-seven cases. There can be no question as to the propriety of operative intervention or the great benefits to be expected from it. His death rate could easily have been made better by refusal to operate on several of the worse cases, and yet in one of the very worst a prompt recovery resulted. It is probable that several of the patients who died would have recovered if they had been operated upon earlier or subjected to a more radical operation.

The technique used in all such cases consists in performing a panhysterectomy by the method described by him in a paper read before the American Association of Obstetricians and Gynecologists at Indianapolis in September, 1916. The operation should not consume more than thirty minutes.

The author comes to the following conclusions:

Without operative intervention, death occurs. In those rather rare cases in which the disease is limited practically to the ovarian veins, ligation of the veins above the thrombus is feasible, but the death rate, as shown by Miller, is not less than 60 per cent. According to the outcome in sixty-seven cases the mortality of radical operation with free drainage of all the infected veins, and usually with hysterectomy, is a little less than 30 per cent or about one-half that of ligation.

Puerperal infection is simply a wound infection and should be treated on general surgical principles. Ear specialists long ago learned the vital importance of cleaning out, with ligation if necessary, the thrombosed internal jugular vein in cases of lateral sinus infection due to disease of the mastoid; and there is certainly a striking similarity between an infected thrombus in the jugular vein and an infected thrombus in the veins of the pelvis.

E. L. CORNELL, M.D.

NEWBORN

Bailey, H., and Bagg, H. J.: The Effects of Irradiation on Fetal Development. *Am. J. Obst. & Gynec.*, 1923, v, 461.

Experiments upon the lower animals have shown that when the sex glands are sufficiently irradiated before fertilization the typical fetal reactions are as follows:

1. A disturbed, abnormal arrested development resulting in the formation of a monster conforming more or less to a general type, and pronounced disturbance in the development of the central nervous system (Bohn, Perthes, O. and G. Hertwig, Schaper, Tur Bordier, and Baldwin.)

2. A marked tendency to a loss of fertility.

3. A specific modification of the hereditary mechanism (Mavor) and the production of inherited defects in the young, especially in the eyes (Little and Bagg).

Irradiation during pregnancy causes the following typical disturbances in fetal development, depending upon the developmental period at which the irradiation was instituted:

1. Disturbed, arrested, abnormal development with death of the embryo, absorption or abortion, stunting of growth, cataract, sterility, lesions of the central nervous system, and blood vascular disturbances in the embryo (Hippel and Pagenstecher, Regaud, Nogier, Lacassagne, and Coutard.)

In judging clinical reports the authors conclude that when comparatively great disturbances resulted in the child, the irradiation was given early in pregnancy. Irradiation during early pregnancy may cause the death and premature delivery of the fetus.

Irradiation during late pregnancy is not so apt to produce gross developmental abnormalities in the child at birth, but in some cases children irradiated *in utero* at this period were prematurely delivered, showed post-natal growth disturbances or died within the first year. Werner reported three cases in which retardation of growth resulted, and four in which the child died within the first year.

The severity of the treatment as well as the period at which the irradiation was given no doubt determines the reaction of the fetal tissues.

The experimental evidence in the lower animals shows with great probability that irradiation injures the follicular elements of the ovary. The first patient whose case is reported by the authors was suffering from Hodgkin's disease and ten months before conception was heavily radiated with the X-rays. A male infant with an extensive developmental arrest in the formation of the head was born, and died a few hours after birth. The second patient, who was treated for a fibroid with gamma-ray radiation became pregnant eighteen months later. In this instance a large, still-born infant was delivered at term. In the last case, gamma-ray radiation was given from a platinum tube placed in the uterus. Conception occurred seven months later, and the child was apparently normal at birth. The authors state that their evidence is not sufficient to warrant attributing the developmental defect in the first case or the stillbirth in the second to the irradiation.

In the treatment of menorrhagia in the child-bearing period complete sterility is preferable to the possibility of a damaged germ plasm.

E. L. CORNELL, M.D.

Sherman, D. H., and Lohnes, H. R.: Bleeding and Coagulation in the First Week of Life. *N. York State J. M.*, 1923, xxiii, 146.

The authors emphasize the fact that too little consideration has been given in hæmorrhagic birth accidents to possible blood abnormalities in the child. The immediate danger of birth hæmorrhage ends with the first day, but its results may not appear until much later in life. At the Hooper Foundation, Lucas and his associates learned that the clotting and bleeding times, even in normal infants, are apt to vary considerably during the first ten days. Rhodda's test shows that the average coagulation time of the newborn is from five to ten minutes. According to Duke's test, it is from two to five minutes.

At the Buffalo General Hospital, under the direction of Roman, the authors are beginning the study of the blood of infants by Rhodda's method. The second drop from a puncture of the heel is caught in a clean watch glass containing No. 6 shot and this watch glass is covered with another. The glasses are then tilted every thirty seconds until the shot is fixed in the clot. The bleeding time is shown by the puncture. Observations were made daily for five days in 100 cases. In twelve cases the clotting was prolonged beyond nine minutes and in twenty-eight cases the bleeding time was more than five minutes. A large number of these showed slight prolongation on the second, third, and fourth days. In two cases the bleeding continued for hours. In the only case of cerebral hæmorrhage the bleeding time was ten minutes and the clotting time fifteen minutes on the second day. The infant recovered completely after the subcutaneous injection of 10 c.cm. of whole blood.

The authors conclude from their work that in the newborn there is a definite blood dyscrasia which is characterized by interference with the normal blood clotting on the second or third day. This is no more frequent in premature than in mature infants. It is a temporary condition of hæmophilia which subsides before the tenth day. It is present in 28 per cent of all infants; it varies in degree and is characterized by a prolonged bleeding time rather than a prolonged clotting time. The suggestion is made that the cause of hæmorrhagic disease in the newborn is a change in liver function due to the change in the circulation from the fetal to the mature.

In conclusion the authors state that surgeons should insist upon a determination of the clotting and bleeding times before operating upon infants during the first ten days of life.

ROSCOE JEPSON, M.D.

Falls, F. H.: Blood Transfusion by the Citrate Method in Hæmorrhages of the Newborn. *J. Am. M. Ass.*, 1923, lxxx, 678.

This article reports the successful results following blood transfusion in fourteen cases of hæmorrhage of the newborn, one of them complicated by icterus.

The author states that grouping of the blood before transfusion is unnecessary as hæmagglutinins and precipitins are not developed in the child to any great extent before the second year of age. He suggests that, if the mother's blood is used, a slight excess of citrate solution be employed because of the greater tendency to coagulation in puerperal women.

Striking improvement is shown after the transfusion of from 70 to 100 c.cm. of blood. This amount of blood is greater than that suggested by the majority of writers in discussing transfusion for very young infants.

The author dissects out the jugular vein in the neck and ligates the vein after the transfusion.

SUMNER L. KOCH, M.D.

McDowell, H. C.: Postmortem Findings in the Newborn. *N. York State J. M.*, 1923, xxiii, 143.

From the practice of Potter and himself the author reports the findings in thirty stillborn infants or those dying within ten days of delivery. All of these infants were delivered by version.

McDowell remarks on our lack of knowledge concerning the cause of stillbirths and emphasizes the importance of investigating at every opportunity. After an excellent résumé of the reports from several recognized maternity centers he mentions the various factors, maternal, fetal, cord, and placental, which contributed to stillbirths in his own series of cases. The autopsy findings are then taken up. The following pathologic conditions were found: suprarenal hæmorrhages, ten cases; pulmonary hæmorrhages, seven cases (two associated with pneumonia); kidney infarction, two cases; subdural hæmorrhages, two cases; cerebral hæmorrhage, three cases; meningeal injection, two cases; cerebral embolism (air), one case; pericardial and subperitoneal hæmorrhages, two cases; congenital deficiency of the left diaphragm, the lungs, stomach, spleen, and bowel being in the chest, one case; intra-uterine asphyxia, five cases; birth injury (fractured skull), two cases; fracture of vertebra, one case; perforation of the skull, two cases; spina bifida, two cases; meningocele, one case; tearing of the tentorium cerebelli, four cases; hydronephrosis, one case; enlarged suprarenals, one case; hydrocephalus, two cases; and hæmorrhagic diathesis, two cases.

A further grouping of these cases reveals that 23½ per cent showed pulmonary hæmorrhages. These hæmorrhages were not in themselves the cause of death. Among the direct causes were prolapse of the cord, premature separation of the placenta, and intra-uterine asphyxia due to pressure on the cord. In the author's opinion, these hæmorrhagic conditions are due to an increase in the clotting time of the blood caused by external pressure applied upon the fetus either through the cord or directly. Prolonged labor, by lowering the vitality of the fetus and causing continued pressure upon its body, undoubtedly favors hæmorrhage.

In the cases of spina bifida, hydrocephalus, and other cranial abnormalities the author found changes in the glands of internal secretion. He believes there is a definite relationship between the development of the fetus and these glands. Pressure upon the body of the fetus may be as great as that upon its head. In the series of cases reviewed, syphilis was found in only one although three of the fetuses were macerated.

In conclusion the author states that the chief causes of death are prolapse of the cord and placental complications, hæmorrhagic conditions in the fetus (the result of cord complications accompanied by asphyxia neonatorum and placental complications), and abnormalities and infections of the fetus. Syphilis rarely causes fetal death. By decreasing the time required for the fetal head to pass through the pelvis, the author has reduced the cases of cerebral hæmorrhage and eliminated mutilating operations upon the child. The number of birth injuries has been reduced by eliminating the use of forceps. The remaining problem is to find a method of decreasing the clotting time of the blood of the fetus.

ROSCOE JEPSON, M.D.

MISCELLANEOUS

Dale, H. H.: *The Value of Ergot in Obstetrical and Gynecological Practice: With Special Reference to Its Present Position in the British Pharmacopœia.* *Proc. Roy. Soc. Med., Lond.*, 1923, xvi, Sect. Obst. & Gynæc., 1.

The difference in the two commonly used preparations of ergot in the British pharmacopœia, *extractum ergotæ liquidum* and *extractum ergotæ* (or *ergotine*) depends on their preparation. The former is a watery extract made with the addition of alcohol which carries down the materials regarded as impurities. The latter is an alcoholic extract from which an insoluble residue has been precipitated by the addition of water and removed.

Tanret first isolated from ergot a pharmacologically and therapeutically active substance named "ergotinine." This included a pure crystalline and an amorphous alkaloid, which he considered identical in their essential properties.

Later workers demonstrated that the crystalline form is practically inert. Still later, crystalline salts were obtained from the substance formerly considered amorphous. This latter substance, renamed "ergotoxine," was considered the principle responsible for the specific therapeutic action of ergot.

At that time, however, practitioners were using the preparations of the British pharmacopœia which had been freed of the ergotoxine. There was confusion as to the value of measuring the therapeutic strength of a liquid extract of ergot by its effect on the blood pressure of the cat or its action on isolated uterine muscle because the active principles of the substances measured were demonstrated to be the bases tyramine and histamine.

A new alkaloid—"ergotamine"—was isolated from ergot by Stoll, a Swiss chemist. Laboratory tests have led to the belief that this is identical qualitatively and quantitatively with "ergotoxine." It is suggested that official extracts be so revised that they will retain these two alkaloids.

Ergotinine citrate, "gynergen," and "femergen" owe their activity to the specific alkaloids. A preparation called "ernutin" contains the specific alkaloids and the putrefactive bases as well.

Since the war, the difficulty of obtaining ergot from Russia has resulted in the preparation of a product containing the non-specific bases but lacking the ergotoxine.

The author suggests that the type of ergot action, and consequently the type of ergot preparation desired in gynecology may differ from that needed in obstetrical procedures. In this discussion he shows how ill-defined is the position of ergot and its official extracts relative to its specific value and therapeutic action.

V. E. DUDMAN, M.D.

GENITO-URINARY SURGERY

ADRENAL, KIDNEY, AND URETER

Severn, A. G. M.: A Case of Acute Bilateral Suprarenal Hæmorrhage. *Lancet*, 1923, cciv, 646.

The case reported was that of a 59-year-old unmarried woman with chronic melancholia who was a patient in the Devon Mental Hospital. During her three years' residence in the hospital her general condition had been poor but she had never shown symptoms of definite illness. Routine medical examinations had indicated slight arteriosclerosis and slight albuminuria. There were no signs of Addison's disease or other tuberculous foci and none of the external sexual abnormalities associated by some observers with disease of the suprarenal glands.

During the early part of the day of the attack reported the patient appeared well but late in the afternoon collapsed rather suddenly and became profoundly asthenic. Her condition then became worse and death occurred within three hours.

At autopsy the body showed no cutaneous rash, bronzing, or pigmentation of the mucous membranes, and no macroscopic lesions were found in the abdominal cavity. As far as was ascertained, the sympathetic ganglia and the other endocrine organs were normal, with the exception of the spleen, which was pultaceous and pale. The kidneys showed slight interstitial changes. In the region of the pancreas there was hæmorrhagic staining of the retroperitoneal tissue, but on section the pancreas was found normal.

The suprarenal bodies were both distended to the size of a hen's egg, oval, dark-red, free from adhesions, separated readily from the kidneys, and showed no signs of tuberculous disease or neoplasm. The right suprarenal weighed 37 gm., and the left slightly less. There was no pus or necrotic tissue and no evidence of old inflammation. On section, the cortex was seen to be thinned and the gland distended with unorganized blood clot. The medullary chromaffin cells had been destroyed. The hæmorrhage had evidently begun in the medullary tissue and may have coincided with the first syncope.

Microscopic examination of both suprarenal glands showed recent hæmorrhage in the medulla causing complete disorganization of the cells and infiltrating the thin cortical layer. Sections were stained for micro-organisms without result, and Gram's staining also showed no evidence of bacteria.

CARL R. STEINKE, M.D.

Thompson-Walker, J.: Remarks on Pyelography. *Arch. Radiol. & Electrotherapy*, 1923, xxvii, 334.

The early and accurate diagnosis of many diseases of the urinary organs depends upon the advances made in roentgenology.

The author has used sodium bromide constantly since April, 1920. Its advantages are that it is cheap, unchanged by boiling, clean, and probably non-irritating, especially in 20 per cent solution.

The important points in the technique of pyelography are as follows:

1. The examination must be carried out without a general anæsthetic.

2. Previous experience in catheterization of the ureters is necessary.

3. Before the opaque solution is introduced the fluid in the renal pelvis must be withdrawn by suction with a syringe connected with the ureteral catheter. The injection of an opaque fluid into a pool of retained urine gives a poor shadow.

4. The opaque catheters should be of moderate size so that they will not completely fill the ureteral lumen.

5. The catheter should be passed until it is arrested and then withdrawn 1 cm.

6. The patient should lie on his back and the couch should be inclined so that his head is low.

7. The roentgenologist should have the plates and tubes in position before the pelvis is filled, and should be ready to make the exposure without moving the patient and without delay.

8. The injection should be made slowly and with a gentle touch.

9. When pain is felt in the kidney the injection should be stopped.

10. When the exposure has been made, the fluid should be removed from the renal pelvis by suction.

The fully-developed hydronephrosis may be diagnosed without pyelography, but it is of great importance to recognize early changes before destruction of the kidney tissues is advanced, and this can be done only by accurate reading of the pyelographic plates.

The five essentials for the correct reading of a pyelographic plate are:

1. The shape and lie of the pelvis. The normal pelvis is trumpet-shaped and set vertically on the upper end of the ureter. From it, the calices project laterally and anteroposteriorly.

2. The shape and appearance of the calices. The normal calyx has a short neck and an expanded end which is cup-shaped. In the hollow of the cup lies the apex of the pyramid. Calices seen end-on appear as rounded darker patches near the outer border of the shadow of the pelvis. Usually, most of the calices are seen projecting laterally. Occasionally a number of end-on calices are shown and may suggest stone shadows.

3. An opaque catheter passes from the ureter into the upper calyx vertically or with a slight outward curve.

4. The upper ureter, the lower margin of the renal pelvis, and the lowest calyx form a symmetrical curve amounting to half a circle. This the author calls the "uretero-calicine curve."

5. The expansion of the ureter into the renal pelvis is gradual and there is nothing to mark the point of juncture.

The earliest changes in the development of hydronephrosis occur in the calices. The cup end of a calyx becomes rounded or clubbed so that the cupping disappears. The neck is shortened or broadened. In advanced hydronephrosis the calices are represented by rounded bays projecting from the expanded pelvis.

The pelvis begins to show changes in shape, becoming rounded and sometimes almost square. The upper margin is elevated and the lower margin is depressed. The over-distended normal renal pelvis should not be mistaken for an early hydronephrosis.

The uretero-calicine curve loses its symmetry and becomes an angle. The angle becomes gradually reduced in size until ultimately it almost disappears.

The upper wall of the pelvis is pushed upward and the line of the ureter and upper calyx is changed. A catheter passed up the ureter will not enter the upper calyx, but will impinge on the roof of the pelvis, raising it up like a tent pole, or may coil round and double into a loop.

Changes at the juncture of the pelvis and ureter are then observed. The lumen may appear narrowed or the angle at which the ureter joins the pelvis may be altered.

Other uses for pyelography and ureterography are the following:

1. The localization of a supposed stone shadow in the kidney: Pyelography will increase the accuracy of the localization.

2. The localization of a shadow in the renal area: With the greatly improved technique of roentgenography a new difficulty for the urinary surgeon has arisen as gall-stones are now being demonstrated on the X-ray plate and shown in the renal area or near to it. Pyelography will demonstrate the exact position of the renal pelvis and calices and their relation to a shadow in such a doubtful case. If the shadow does not lie over that of the renal pelvis or calices, it is probably due to an extra-renal cause. Another method of differentiating gall-stone shadows is lateral roentgenography and later pyelography.

3. The diagnosis of abdominal tumors: The cases in which difficulty arises are those in which there are no localizing characters (such as a notch) or localizing symptoms (such as hæmaturia or jaundice). The renal pelvis and calices may be shown to lie at a distance from the swelling. The following occurred in the author's practice: (1) a mass of abdominal glands in a child; (2) hydatid cysts attached to the liver; and (3) rectoperitoneal sarcoma.

LOUIS GROSS, M.D.

O'Neill, R. F.: *The Importance of Pyelography in Recognizing the Causes of Obscure Abdominal Symptoms.* *Boston M. & S. J.*, 1923, clxxxviii, 671.

Pyelography and ureterography are extremely accurate means of diagnosing and excluding lesions of the urinary tract. In some lesions of the urinary tract the symptoms may be typical and suggestive of their location but in others they may suggest a lesion remote from the parts involved.

In cases of supposed renal colic it is necessary to exclude appendicitis, calculus, ureteral kink, and renal torsion. When the urine is normal and the roentgenogram inconclusive, the use of the opaque catheter or pyelography and ureterography are indicated.

The differential diagnosis of lesions of the upper abdomen is equally important. Pain may occur in either quadrant and the physical examination may be negative or misleading. The conditions to be differentiated are distention of the gall-bladder, mesenteric cyst, renal lesions, intra- and retro-peritoneal growths, and pelvic tumors.

Pyelography is a hospital procedure and the patient should be kept quiet for several hours after the examination. The contrast medium is 12.5 per cent sodium iodide solution. The fluid is injected slowly by the gravity method and the injections should be stopped at the first sign of discomfort. Simultaneous bilateral pyelography is to be condemned, especially if the kidneys are known to be damaged. The picture should include a ureterogram made by withdrawing the catheter and injecting the ureter.

Pyelography is contra-indicated in tuberculosis, acute urinary infections, and large hydronephrosis in which the diagnosis can be made from ordinary catheterization of the ureter; also in the cases of persons whose general condition is poor and those who react violently to instrumentation.

LOUIS NEUWELT, M.D.

Dyke, S. C.: *On the Passage of the Staphylococcus Aureus Through the Kidney of the Rabbit.* *J. Path. & Bacteriol.*, 1923, xxvi, 164.

The author gives the history of the study of the subject from the investigations of Cohnheim in 1882 to the present time. Before Cotton's experiments with the staphylococcus aureus in 1895 it was generally believed that bacteria are never excreted through a normal kidney. In 1896 Biedl and Kraus found that the staphylococcus injected into the blood appeared in the urine in a few minutes. Vincenzi in 1909 made almost the same finding with regard to the bacillus coli as he discovered the bacteria in the glomeruli and Bowman's capsules. In 1921, Lepper, using coliform bacteria, found that in the absence of lesions in the kidneys the organisms did not appear in the urine and that the initial lesion was a bacillary embolism of the capillary vessels of the papillæ.

In Dyke's experiments on rabbits the cocci injected into the blood stream did not appear in the

urine in any instance in less than five hours and could be demonstrated in the kidneys only when the organs were removed from the experimental animals and incubated within five hours of the injection. In kidneys removed fifteen minutes after the injection, the cocci were detected in the glomeruli, the capillaries of the tuft were engorged, and small coccal emboli were seen. Dyke concluded that destruction of cocci by phagocytosis occurred in the glomerular tufts. In kidneys fixed after eighteen hours he discovered abscesses which had their origin in the vessels and involved the tubules subsequently. Later, specimens showed abscesses in the medulla as well as the cortex. In kidneys removed forty-eight hours after the injection, an abscess was demonstrated in the glomerulus still bounded by Bowman's capsule.

Dyke concludes that normal kidneys are not capable of excreting living organisms circulating in the blood. He believes that in his experiments renal lesions were present as soon as the cocci were demonstrated in the kidney but were not sufficiently gross to be demonstrated until after the lapse of eighteen hours. These lesions he attributes to the lodgment of coccal emboli in the small vessels.

B. F. ROLLER, M.D.

Magoun, J. A. H., Jr.: Renal Function Following Nephrotomy. *Surg., Gynec. & Obst.*, 1923, xxxvi, 675.

In four of twenty-one cases of complete nephrotomy performed at the Mayo Clinic for various conditions and in two of 150 cases in which a nephrolithotomy had been performed a secondary nephrectomy was necessary on account of hæmorrhage.

Experiments on animals were carried out by the author to determine the amount of destruction and the consequent lowering of renal efficiency resulting from nephrotomy wounds. Four series of experiments were conducted; (1) bilateral nephrotomy at one operation; (2) bilateral nephrotomy with an interval between the two operations; (3) the removal of one kidney and a subsequent nephrotomy on the remaining kidney; and (4) unilateral nephrotomy and removal of the other kidney later.

Twenty-six nephrotomies were performed on twenty-three dogs. Stones were formed in four of the dogs; hæmorrhage occurred in three (secondary in two and consecutive in one); uræmia developed in seven (associated with hæmorrhage in two, and with stones in one); a temporary change in function with return to normal was noted in nine; a slight change in function occurred in five; a moderate change in function occurred in two; and a marked change in function occurred in seven.

The author draws the following conclusions:

1. The arrangement of the arteries of the kidney is different in man and the dog.
2. In the dog, complete nephrotomy, bilateral or unilateral, may be performed with maintenance of life and renal function. A single kidney subjected

to nephrolithotomy will maintain sufficient function to support life and health.

3. A serious danger of complete section of the kidney is secondary hæmorrhage. Smaller incisions may be made into the kidney to remove a stone with small risk of secondary bleeding.

4. Generally, pelviotomy is the operation of choice in the treatment of renal calculi; in selected cases, however, nephrolithotomy is indicated.

Crosbie, A. H.: Kinks of the Ureter Due to Aberrant Vessels. *Boston M. & S. J.*, 1923, clxxxviii, 678.

Any vessel crossing the ureter to the lower renal pole may cause obstruction. Vessels coming from the renal vessels or the aorta and vena cava lie anterior to the ureter and may cause obstruction close to the ureteropelvic juncture. If the kidney is in the normal position, they are harmless.

Aberrant vessels are responsible not only for many cases of Dietl's crisis, but also for recurrent pyelonephritis, chronic hydronephrosis without crises, hæmaturia, and bacilluria. Obstruction to the free flow of urine leads to infection.

The symptoms caused by kinks produced by aberrant vessels vary according to the acuteness of the obstruction and the amount of infection. In some cases only frequency may be present and there may be no pain higher than the bladder. There may or may not be pain on the side affected, and frequency may or may not be noted. The urine may give a clue or appear normal, but sedimentation usually reveals a few erythrocytes and leucocytes or both. Severe cases with very acute colic and a palpable hydronephrosis are easily diagnosed. The more complete the obstruction of the ureter, the more quickly the kidney ceases to excrete.

The pathologic changes may be very slight or show all degrees of hydronephrosis and pyonephrosis.

The diagnosis is usually made from the pyelogram, but may be suggested by the history and symptoms. The technique used by the author is as follows:

Both ureters are catheterized, the catheter being passed to the renal pelvis. Pyelograms are made with the patient holding his breath. A second pyelogram is then made with the catheter withdrawn a few centimeters below the renal pelvis, thereby revealing the presence of a kink. Three or four cubic centimeters of solution are injected just before the pyelograms are taken.

The treatment is operative. The free oblique incision used for nephrectomy is employed in order to expose the pelvis and ureter freely. If there is no hydronephrosis and not much infection, the aberrant vessel is divided and nephropexy is done. If a large hydronephrosis is present, nephrostomy is done after the vessel is cut, and rubber-tube drainage through the kidney substance to the pelvis is maintained for a week. The operation should always be preceded by pyelography. Judgment should be used in cutting large vessels going to the lower renal pole as this may cause renal necrosis.

LOUIS NEUWELT, M.D.

Thomas, G. J.: The Diagnosis and Treatment of Ureteral Calculi. *Minnesota Med.*, 1923, vi, 226.

Clinical observation and animal experimentation demonstrate that infection plays a major rôle in the production of renal stone. The author reports a study of the history and clinical findings in fifty cases of ureteral stones. Infection was present in 75 per cent. In 70 per cent there was infection in the teeth, tonsils, and sinuses. Seventy to seventy-five per cent of renal stones pass from the kidney. In about 40 per cent of the cases the stones are found in the right ureter, in 30 per cent in the left ureter, and in 10 per cent in both ureters. Stones are found in males three times as often as in females. Eighty per cent of stones found in the ureter are within the lower third, a few in the middle third, and 15 per cent in the uretero-pelvic juncture.

Vesical irritability is noticed at some time during the passage of a ureteral stone in about 80 per cent of the cases. This is fortunate, as the sign frequently assists in the differential diagnosis from other abdominal or pelvic conditions. If a stone completely obstructs the ureter, vesical irritability is not frequent unless the obstruction is in the bladder section of the ureter. There is more complaint of frequency of urination than of burning. The diagnosis is often difficult and depends upon a series of findings such as pain, vesical irritability, positive X-ray findings, a positive pyelo-ureterogram, obstruction to the ureteral catheter, and positive findings on bimanual palpation.

The author emphasizes particularly that ureteral stone should be thought of in every case of abdominal pain although not all ureteral calculi cause pain in their passage. Differential functional tests do not indicate the true function of a kidney which has been temporarily damaged by the presence of a ureteral stone.

A calculus may remain in the ureter for months without causing pain or permanent damage to the kidney. Ninety to 95 per cent of ureteral stones pass spontaneously or can be removed by manipulation. A permanent ureteral catheter produces dilatation, relieves pain, and facilitates the easy and quick passage of a ureteral stone. After-treatment which includes the removal of all foci of infection, lavage of the kidney pelvis, etc., is important and should be carefully and thoroughly carried out because infection is one of the etiological factors in the production of ureteral stone. If a patient comes from a locality in which the number of cases of urinary stones is large, the drinking water should be boiled.

HARRY W. PLAGGEMEIER, M.D.

Walters, W.: Surgical Treatment of the Ureter in Tuberculosis of the Kidney. *Minnesota Med.*, 1923, vi, 307.

The ureter which is involved in the tuberculous process infecting the kidney is often the source of post-nephrectomy drainage. In cases in which the ureter is strictured close to the bladder, it is

essential that it be removed below the point of narrowing at the time of nephrectomy.

Various methods have been employed to dispose of non-strictured ureters, such as ligation and cautery sterilization of the stump. Judd ligates the ureter and threads the stump into a rubber tube, thus isolating any infectious drainage and allowing the wound to heal by first intention.

In a study of the end-results in 282 patients who had been nephrectomized for renal tuberculosis it was found that compression of the stem of the ureter, ligation of the ureter with catgut, and cauterization of the stump gave the best results. In 48 per cent of the cases there was primary union before the patient was dismissed from observation.

The forceps method (sealing the cut end of the ureter for from forty-eight to seventy-two hours with two pairs of forceps on the renal pedicle) gave only fair results. In the majority of these cases the forceps were used to control the vascular pedicle of the kidney, and the ureter was caught in the same closure. This method was used only in emergency because of a short pedicle.

Suturing the ureter to the skin incision was also unsatisfactory. W. J. Mayo removes all strictured ureters to a point below the stricture. In other cases, he clamps the ureter with a hæmostat, divides it with the cautery, and drops it back without a ligature, which he believes might act as a foreign body. After thorough hæmostasis, the incision is closed without drainage.

BLADDER, URETHRA, AND PENIS

Leguen and Rochet: Perivesical and Pelvic Cellulitis After Certain Cystostomies or Suprapubic Prostatectomies (Les cellulites périvésicales et pelviennes après certaines cystostomies ou prostatectomies sus-pubiennes). *J. d'urol. méd. et chir.*, 1923, xiv, 1.

Suprapubic cystostomy is today usually without complications. In this article the authors discuss cases of long-standing urinary infections, especially those associated with prostatic disturbances which have been subjected to cystostomy. In rare cases local or even general complications may follow a suprapubic operation, especially when the vesical opening cicatrizes slowly. A prolonged retropubic urinary stagnation develops with pocket formation. Vesical and hypogastric drainage usually clears this up, but sometimes the infiltration increases, spreads around the base of the bladder into the retropubic space and from there extends along the abdominal wall near the inguinal canal or penetrates the iliac fossa.

Usually it descends into the true pelvis and points out through the obturator foramen under the adductor muscles of the thigh. It may erode the posterior surface of the pubis and cause osteomyelitis. In one case observed by the authors there was a true symphysis arthritis. Pressure on the soft parts over the pubis becomes very painful, and eventually,

when the infection has passed into the thigh adductors, permanent thigh flexion and adduction result. Pressure on the adductors at the pelvic end is painful. General symptoms supervene and septicæmia begins.

A second type of complication, which does not depend on such infiltration, occurs a long time after the cystostomy when only a small fistula remains. In such cases sounding is no longer done and there can be no ulceration from an inlying catheter because it has been removed. However, small abscesses develop slowly, there is slight fever, and the general condition is poor. The abscesses may point at the vesical opening, the iliac fossa, the abdominal muscles, the pelvis, or the perineum. Following the drainage of one abscess new points of infection and abscess develop and the condition becomes aggravated. Pelvic cellulitis follows, the abscesses spread to the liver, and death results from septicæmia.

Several hypotheses are advanced to explain this condition. The infection probably comes from a slowly developing low prostatic abscess, an abscess within the bladder walls, or a chronically infected prostatic urethra.

The authors believe that in old prostatic cases in which there have been multiple explorations and soundings the deep urethra and the bladder mucosa may be the sites of chronic ulcerative infection. Under such circumstances the infection is easily transmitted to the lymphatics of the bladder and prostatic urethra, this leading to the formation of the multiple and sometimes distant abscesses mentioned. When the pelvis has been dissected by the abscesses, pyæmia results.

Hypogastric infiltration and pelvic cellulitis are also encountered after prostatectomy but very few such cases have been reported. The authors saw only three in more than 1,000 cases of prostatectomy. These inflammations are exactly like those following cystostomy and are caused by the same mechanism. They are more apt to develop after prostatectomy than after cystostomy on account of the larger opening into the bladder and the greater amount of trauma in the former operation. Pelvic cellulitis spreads from the poorly drained and infected bed from which the prostate was removed. In one case in which a prostate as large as a woman's fist was removed, infection of the prostatic pocket followed, and in spite of perineal drainage of the bladder, progressed, extended to the liver, and caused death.

After partial cystectomy, especially for malignant tumors and near the bladder base, these complications are frequent and easily explained. When the bladder is amputated in the juxta-cervical portion, the infected urine easily stagnates in the operative field and behind the bony ring of the pelvis, in spite of the approximation of the wall by sutures and the use of a large suprapubic drain. Hypogastric infiltrations and pelvic cellulitis are favored.

The following rules with regard to the suprapubic incision have been generally accepted:

1. In uncovering the bladder do not free it just behind the pubis, and in pressing back the peritoneal cul-de-sac keep below the superior border of the pubis. In this way perivesical and prevesical cellulitis may be prevented.

2. Do not extend the bladder incision too low into the vesical neck, as this would give the urine an opportunity to stagnate behind the symphysis.

In making a true cystostomy to form a fistula, the lips of the bladder opening should be sutured to the skin or, in the cases of fat patients, to the internal borders of the rectus. In a prostatectomy, if the gland is very large, the bladder incision should be enlarged transversely rather than toward the neck. The bladder wall may be sutured to the muscles to serve as a guide for the entering fingers. The enucleation of the prostate must be done firmly but gently and without tearing the bladder or leaving fragments of the gland. After the gland is removed its site should be tamponed and the bladder wall closed around a Freyer tube.

If signs of infection appear, especially unexplained fever, it is best to insert perineal drainage to the lateral sides of the bladder, not directly in the midline. All other abscesses should be drained as early as possible wherever they point.

KELLOGG SPEED, M.D.

Hyman, A.: Diverticula of the Bladder in Children.
J. Urol., 1923, ix, 431.

Diverticula of the bladder are not unusual in adults but only three cases of this condition in children under 10 years of age have been reported in the last seventeen years although these pouches are generally considered to be congenital. The true diverticulum comprises all the coats of the bladder, while the false includes only the mucous membrane. One school maintains that the condition is congenital, another that it is acquired, and another that there is always a congenital predisposition to its development. The contributory factors are increased distention or activity of the bladder musculature.

The diverticula may be single or multiple. They range in size from that of a small plum to that of an orange, and are most serious when they compromise the ureter. The cases are not usually seen until urinary infection supervenes. All of the cases studied showed residual urine and pyuria. Diagnostic signs are acute retention, hæmaturia, pyuria, residual urine, and distention of the bladder, but for a definite diagnosis the cystoscope and cystogram are essential.

The prognosis is good and the mortality is low. Non-surgical methods of treatment are useless; for a cure, radical extirpation of the sac is necessary. When the ureter has been occluded it must be divided and re-implanted.

The author reports three cases treated at the Mount Sinai Hospital, those of male children 9½ years, 9 months, and 3 years old. All were cured by operation. In every instance it was necessary to re-implant the ureter.

B. F. ROLLER, M.D.

Culver, H., and Forster, N. K.: Primary Carcinoma of the Urethra. *Surg., Gynec. & Obst.*, 1923, xxxvi, 473.

The authors report three cases of primary carcinoma of the urethra, two those of females. Venot and Parcelier classify carcinomata of the female urethra as follows:

I. True urethral carcinomata:

a. The ulcerous type. This is rare, only three cases being recorded.

b. The infiltrative type. This is somewhat more common than the ulcerous type but Percy found only sixteen cases in 1903, Karaki found only nineteen in 1908, and Whitehouse collected only eleven in 1911.

II. Vulvo-urethral carcinomata:

a. The polypoid or papillary type. About fifteen cases have been reported.

b. The ulcerous type. The neoplasm begins at the meatus or its vicinity and hollows out and destroys all the neighboring tissues. Seven cases of this type have been found in the literature.

c. The infiltrative type. This is the most common type, and usually begins as a small meatal tumor which soon invades the vestibule, the urethrovaginal septum, and the surrounding structures.

The same classification, with suitable alterations, may be applied to the male, the true urethral types of carcinoma arising from the urethral epithelium or its glands and being of an ulcerous or infiltrative character, and the para-urethral types arising from the epithelium surrounding the meatus and involving the urethra secondarily. The latter may be ulcerous, as in malignancy following chancroidal infection, or infiltrative, spreading from the glands or the surrounding structures and involving the urethra gradually. Finally there are cases resulting from the malignant degeneration of papillomata in the region of the meatus.

Histopathologically the neoplasms are squamous, columnar, or adenocarcinomatous in type. The latter is the most uncommon. As is true of malignant tumors elsewhere in the body, the direct cause is unknown. Reports indicate that the incidence in both sexes is greatest between the ages of 40 and 60 years. Leucoplakia has been considered of importance by some authors. Caruncle as a forerunner is undoubtedly of considerable consequence, although mentioned in only about 10 per cent of the case reports in the literature. Especially does this seem to be true in cases subjected to frequent cauterization causing chronic irritation. Stricture and chronic urethritis in the female are not generally considered of importance. Trauma and predisposition are given considerable weight by the majority of authors. O'Neil gives the predisposing causes in the male as trauma, leucoplakia from chronic urethral irritation, and stricture formation. The latter is present in 50 per cent of the cases. O'Neil believes that in the majority of instances the lesion arises from the bulbous urethra, which is the most common site of stricture formation.

There are two recognized methods of treatment, operative procedures and treatment by physical agents such as radium and mesothorium. Aside from the cases in which an extensive operation was done, the surgical treatment of urethral cancer has been attended by almost no postoperative mortality.

With respect to the use of radium and mesothorium the authors state that in inoperable cases this method of treatment is the method of choice. In the few reported cases in which these agents have been used they have been of benefit. Surgery combined with the use of radium has also been effective in some cases.

In operable cases it seems logical to use both surgical measures and radium or massive doses of the X-ray. Just what results might be obtained from the use of surgical diathermy combined with the after-use of heavy doses of the X-ray is a problem for the future.

The prognosis in these cases depends apparently on the stage at which the patient seeks treatment as well as the associated pathology which may be present. In any event it must be considered grave, for when once the tumors have become established they usually evolve very rapidly and the danger of recurrence following operative procedures is great. Consequently the earlier the cases are seen and treated the better the chances for recovery, provided recourse is had to the proper surgical procedures followed by the judicious use of the X-ray or radium.

H. W. PLAGGEMEIER, M.D.

GENITAL ORGANS

Landau, H.: Vasectomy as a Method of Treating Prostatic Hypertrophy (Ueber die Vasektomie als Behandlungsmethode der Prostatahypertrophie). *Klin. Wchnschr.*, 1923, ii, 255.

Since Haberer, in 1921, reintroduced vasectomy for the treatment of prostatic hypertrophy or as a preliminary measure, this operation has been performed in the surgical clinic of the Charité Hospital (Hildebrand) in twenty-six cases. In sixteen its results were good, but in ten it was unsuccessful.

Of particular importance is the fact that when the radical operation is contra-indicated, vasectomy followed by the use of the retention catheter for from four to six weeks sometimes relieves the symptoms for a considerable length of time, the ability to urinate spontaneously being regained for several months.

VON HOFFMANN (Z).

Young, H. H.: Prostatectomy: Pre-Operative, Operative, and Postoperative Treatment. *Surg., Gynec. & Obst.*, 1923, xxxvi, 589.

PRE-OPERATIVE TREATMENT

In Young's opinion pre-operative treatment has been the chief factor in reducing the mortality of prostatectomy. Preliminary drainage is indicated unless the amount of residual urine is small and the kidney function and general condition are good. Young emphasizes also the importance of injecting

large quantities of water during the pre-operative treatment. To determine the renal function he has used the phenolsulphonephthalein test since it was introduced by Geraghty and Rountree. He finds that during thorough pre-operative preparation for prostatectomy the phthalein output gradually increases to a stationery level. The blood chemistry is also studied in every case.

The situation with regard to the kidneys is summarized as follows:

1. Renal impairment is proportional (roughly) to the back pressure in the ureters.

2. This is characterized by dilatation of the ureter, the pelvis, and the calyces, and thinning of the renal cortex.

3. It is most common and most pronounced in patients with a large quantity of residual urine who have not been catheterized.

4. It is less pronounced in cases with a large quantity of residual urine in which intermittent catheterization has been done.

5. Marked impairment may occur when there is less than 400 c.cm. of residual urine but in such cases is less frequent.

6. It occasionally occurs when the amount of residual urine is small (less than 100 c.cm.), probably because of frequent and prolonged urination during which the ureters are closed and pelvic distention occurs.

Young finds that infection very frequently accelerates a renal lesion but thorough continuous catheter drainage will cause improvement.

As there is danger of suppression of urine from the sudden evacuation of a greatly distended bladder, Young forces the administration of water, giving it, if necessary, by infusion or by rectum when he finds the quantity of residual urine over 500 c.cm. During the past ten years he has occasionally elevated the drainage tube in order to maintain a constant intravesical pressure. He is not sure, however, that this method is better than fractional catheterization.

Infection is the cause of a large number of fatalities. In some instances it spreads to the prostate and seminal vesicles, producing chronic prostatitis and vesiculitis or an abscess. If such an infection reaches the kidney it may be very serious. Infection is sometimes present in cases that have not been catheterized, particularly when the amount of residual urine is large. Almost all cases become infected after prostatectomy. Young's statistics seem to show that cases with a mild cystitis run a smoother postoperative course and are less subject to fever and toxæmia than previously sterile cases. In 20 per cent of his cases he finds epididymitis a troublesome complication.

In cases of bladder calculus suprapubic drainage may be required, especially if the excretion of phthalein is poor and if a retained catheter is not well tolerated. In reviewing 1,049 cases Young found that suprapubic drainage was done in only 1 per cent.

The arguments against suprapubic drainage are summarized as follows:

1. Suprapubic drainage requires considerable attention.

2. It is contra-indicated when the quantity of residual urine is large, the phthalein excretion is poor, and suppression is feared.

3. It is associated with a mortality of at least 2 per cent (Gardner says 3 per cent.)

4. As most cases require drainage for three weeks or longer, the suprapubic scar tissue is more of a hindrance than the fistula is a help.

5. Urethral catheter drainage is the safest and most satisfactory method.

Young discusses several of his cases in which death occurred because a catheter was not well tolerated. Most of these patients had a severe infection and at death showed prostatic abscess or pyonephrosis.

Bladder drainage is summarized as follows:

Cases in which the general condition and the phthalein return are good and the quantity of residual urine does not exceed 200 c.cm. may be operated upon without preliminary drainage or more than ordinary surgical preparatory treatment. Of the author's 1,049 cases, 462 were operated upon within four days of their admission to the hospital.

Cases with a moderate or large amount of residual urine should have preparatory drainage and forced water treatment even if the phthalein return is good, but often may be operated upon in a week if the clinical and laboratory findings are favorable.

Of cases with marked impairment of renal function 30 per cent or less should not be operated upon until the phthalein excretion has risen over 40 per cent or prolonged treatment (for three weeks or longer) has shown that the optimum has been reached, the condition of the kidneys is stable, the blood urea does not exceed 0.5 gm. per liter, and the general condition is fair. In six of the author's cases in which the phthalein excretion was under 20 per cent there was only one death, but all except the fatal case had proper preparatory treatment.

Cases with high blood urea (over 0.75) should be given most energetic treatment—from 7,000 to 10,000 c.cm. of water daily. This applies also to cases with renal infection, especially acute pyelitis.

Suprapubic drainage may be indicated in cases in which the bladder or urethra is spasmodic, painful, or contracted, certain cases with calculi, certain cases with diverticula, tumor, ulcer, or severe cystitis, and cases in which catheterization is very difficult or painful or an inlying catheter is poorly tolerated and there is pronounced suppuration and epididymitis.

In the two-stage suprapubic operation, the first stage is often the most dangerous. Almost every case can be brought into condition for perineal prostatectomy without first-stage suprapubic drainage. In the author's 1,049 cases, suprapubic drainage was used in only eleven (1 per cent). In his last 200 cases there were only two deaths before operation and none afterward.

Persons with diabetes and acidosis can be subjected to perineal prostatectomy if they are properly treated before operation. Ether anaesthesia prolonged operation, hæmorrhage, and infection must be avoided, and postoperative treatment must be vigorous, especially if symptoms of coma appear.

Young finds cardiovascular disease very common among his cases of prostatic hypertrophy. Arteriosclerosis, which is also common, is negligible unless advanced. Young has operated on many patients with a history of apoplexy and with high blood pressure. High blood pressure is dangerous. To decrease it Young recommends rest in bed, reduced diet, and drugs. Excitation before operation and after operation should be prevented by morphine or other drugs. Young regards ether as a good cardiac stimulant for these cases.

A heart lesion was found in 48 per cent of 198 cases, but in the 1,049 cases reviewed there was only one operative cardiac death. In some cases in which fibrillation or other serious heart condition was found Young thought it best to send the patient home to lead a catheter life rather than to attempt operation.

In cases of respiratory infection operation is contra-indicated until the infection has been thoroughly controlled. In such cases anaesthesia should be induced with nitrous oxide and oxygen.

In the cases reviewed, pulmonary embolism was responsible for one death during preparatory treatment and for six after operation. As one of these patients died following an enema, enemata are no longer given after the operation.

TECHNIQUE OF OPERATION

In Young's present method of exposure an inverted U incision is made in the perineum, the prostate is reached by blunt dissection on each side of the central tendon, and the space behind the transversus perinei muscles and triangular ligament is opened up. After division of the median line structures (central tendon and recto-urethral muscle), the posterior surface of the fascia of Denonvilliers is exposed. Division of the posterior layer of this fascia gives entrance into the space between the two which, in fetal life, were peritoneum, and gives easy access to the prostate, seminal vesicles, and vasa deferentia.

Young believes that this method of exposure has an advantage over the old method in that the hæmorrhagic bulb is avoided, the external sphincter and triangular ligament are spared, the anterior surface of the rectum can be readily avoided, and the prostate is exposed so that accurate operative procedures can be carried out. He opens the urethra by means of an oblique lateral or an inverted V incision. This makes it possible to enucleate the entire adenomatous hypertrophy in one piece and to remove every part of the prostate without injuring the neck of the bladder or the internal sphincter. Exploration of the area underneath the neck of the bladder is much easier with

this technique. The article includes several drawings which illustrate the steps in the operation.

A table showing the relation between age and mortality after prostatectomy indicates that the percentage increases gradually with each decade of life, but up to the seventy-fifth year remains very low. After the seventy-fifth year the operation is definitely more dangerous. However, of the last 198 cases operated upon by Young eighteen were those of men over 75 years of age and six were those of men over 80. In this series there were no deaths.

POSTOPERATIVE TREATMENT

In the 1,049 cases reviewed there were thirty-six deaths in the hospital, a mortality of 3.4 per cent. A chart of these cases shows a gradual decline in the mortality of perineal prostatectomy from 8.4 per cent in 1903 to 2.4 per cent in 1919. Since 1919 there have been no deaths. During the last period, in which there were 198 consecutive cases without a death, four patients were refused operation; two of these died in the hospital.

All of the patients received plenty of water before they were sent to the operating room. Careful hæmostasis, quick operation, and control of bleeding after the drainage tube is removed are methods which Young finds will prevent shock.

Pulmonary complications have been the most frequent cause of death. Pneumonia developed in 22 per cent of the cases. In the earlier cases it was due to ether anaesthesia. Since the use of nitrous oxide-oxygen anaesthesia, it has been prevented. The patient should be kept warm and should be out of bed as soon as possible.

Uræmia was the cause of death in 20 per cent of the cases. This is a direct result of serious impairment of the kidneys from back pressure or infection. As a rule the infection responsible is present before operation, but may ascend to the kidney afterward. Young believes that the risk of uræmia is one that must be assumed, but that by prolonged catheter drainage and the administration of large amounts of water the patient can usually be brought into a safe condition for operation.

Pulmonary embolism was the cause of death in 12 per cent of the cases. In some instances it occurs as a result of endocarditis, but as a rule the clot comes from the region of the wound. Cerebral hæmorrhage occurred in three cases and cerebral thrombosis in two. Heart disease was responsible for only two deaths.

In Young's opinion there is no more important feature of treatment than the prevention or combating of sepsis. He finds that the most frequent offender is the epididymis. He uses many different kinds of antiseptics for irrigation of the wound and the bladder. Ascending infections of the kidney pelvis and cortex he treats with internal hydrotherapy. In some cases submammary and intravenous infusions are necessary.

Gastro-intestinal complications do not occur frequently but require attention and vigorous treat-

ment. The use of nitrous oxygen anæsthesia has practically done away with postoperative nausea and vomiting. The patient may drink water in abundance early. Abdominal distention from obstipation or intestinal obstruction is much less frequent after perineal prostatectomy than after the suprapubic operation.

In the care of the wound after perineal prostatectomy in Young's cases the gauze and drainage tubes are removed within thirty-six hours after operation and are not replaced, the urine then being allowed to escape through the lateral perineal wound which is irrigated superficially with a mild antiseptic at each change of the dressing. Water is forced through the urethra five days after the operation. The passage of a sound is not necessary.

The closure of fistula is usually spontaneous, occurring within the first three weeks after the operation. In 23 per cent of the cases it occurred within fourteen days. A persistent fistula is extremely rare. In 450 cases a persistent fistula was present in only five, and in the latter the postoperative treatment may have accounted for failure of the fistula to close. Sixty-four per cent of Young's patients left the hospital within four weeks. Only 5 per cent remained eight weeks.

The act of micturition may not return to normal for several weeks or months. Incontinence of urine is rare. In 450 cases which Young previously reported there was not a single case of complete incontinence, but there were three cases of incontinence when the patient was on his feet. Young insists on careful open operation back of the bulb, transversus perinei muscles, triangular ligament, and external sphincter, all of which structures should be carefully avoided. The urethra should be opened far back near the apex of the prostate well behind all sphincteric fibers.

Young finds that the act of micturition is distinctly more normal after perineal prostatectomy than after suprapubic prostatectomy because after the former the internal sphincter is usually restored to normal, whereas after the latter it is usually widely dilated.

Of the last series of 198 cases in which Young operated and in which there were no fatalities 21 per cent were those of men over 70 years of age. In 20 per cent of the cases the excretion of phthalein was below 50 per cent. In 8 per cent the blood urea was over 0.50 gm. per liter. Cardiac disease was present in 49 per cent. Preparatory treatment with a catheter was carried out in over

60 per cent of the cases, and suprapubic drainage in only 2 per cent. The average length of time the patients remained in the hospital was thirty-two days.

GILBERT J. THOMAS, M.D.

MISCELLANEOUS

Giffin, H. Z.: *Hæmoglobinuria in Hæmolytic Jaundice.* *Arch. Int. Med.*, 1923, xxxi, 573.

Giffin reports the case of a woman, aged 32 years, who had developed slight jaundice and anæmia following a protracted convalescence from influenza three years before. For six months the anæmia and jaundice were marked. On several occasions there were unexplained attacks of headache, depression, increasing jaundice, and "dark urine." When seen by the author, a blood examination showed hæmoglobin 25 per cent, 1,060,000 erythrocytes, 3,800 leucocytes, and a relative lymphocytosis. The reticulated red blood cells were increased, the calcium and prothrombin time was prolonged, and the fragility of the erythrocytes increased markedly. The platelet count was 92,000, but there were no petechiæ. The spleen did not seem to be enlarged. A test for syphilis was entirely negative. The urine contained varying amounts of albumin but no casts. Bile was found in the stool, but none was present in the urine except during the crises.

While the patient was under observation she had seven severe, protracted crises which closely simulated those of hæmolytic jaundice, but were without gall-bladder colic. The attacks were accompanied by hæmoglobinuria. During one attack cystoscopy revealed bilateral hæmoglobinuria without the presence of erythrocytes. Hæmoglobinæmia was demonstrated. Frequently mild attacks occurred without hæmoglobinuria. Various therapeutic agents, such as coagulen, horse serum, ox serum, calcium, transfusions, etc., were apparently without effect. Moreover, hæmoglobinuria seemed prone to occur whenever the erythrocytes rose to approximately 2,000,000. During one remission the patient was given a cool bath, and at times ice bags were placed over the loins without deleterious effects. Moreover, hæmoglobinuria did not occur following blood transfusions.

The author briefly reviews the literature, pointing out that hæmoglobinuria in hæmolytic jaundice is apparently a superimposed condition entirely independent of syphilis and differing from the hæmoglobinuria caused by chilling. Sudden increased hæmolysis plus a destructive renal secretion are mentioned as probable etiological factors.

SURGERY OF THE BONES, JOINTS, MUSCLES, TENDONS

CONDITIONS OF THE BONES, JOINTS, MUSCLES, TENDONS, ETC.

Zollinger, F.: Trauma and Tuberculosis of the Bones and Joints (Trauma und Tuberculose der Knochen und Gelenke). *Schweiz. med. Wchnschr.*, 1922, lii, 1105, 1126, 1154.

As tuberculosis is always caused by the tubercle bacillus, trauma is a factor in its etiology only when the bacilli enter the body through the wound and the general or local resistance of the body is lowered by the injury. Inoculation tuberculosis is a primary and purely traumatic tuberculosis without open injury of the skin and the soft parts in the region of bones and joints such as occurs very rarely. As a rule, there is an aggravation of an active local tuberculosis already present or a metastasis at the area injured. Numerous experiments on animals indicate that tuberculosis may be localized by an injury. Injury as an etiological factor may be assumed only under the following conditions:

1. At the time of the injury the person injured must have been entirely free from tuberculosis.
2. The injury must have been such as would have brought the tubercle bacilli to the area which became diseased later and such as would have lowered the general and local resistance.
3. The injury must have had sufficient force to cause an anatomical injury of the bone or joint.
4. The injury must have caused immediate results.
5. The period of time intervening between the injury and the development of the bone and joint tuberculosis must have been that length of time which is necessary for the development of tuberculosis. The minimum time is from four to six weeks, and the longest time—tuberculosis of the skull, pelvis, and vertebrae—one year.
6. The tuberculosis must have developed at the point of injury.
7. The immediate results of the injury must have passed over into the syndrome of the disease without interruption.

Traumatic aggravation of tuberculosis already present can be assumed only if the diseased area was injured, if the aggravation followed the injury immediately, if its development was more rapid than usual, and if at the time of the injury the tuberculosis was not in an advanced stage.

BRUNNER (Z).

Lewis, D.: Myositis Ossificans. *J. Am. M. Ass.*, 1923, lxxx, 1281.

There are three forms of circumscribed myositis: (1) the traumatic, (2) the non-traumatic, and (3) the neurotic, which usually is associated with ar-

thropathies or fractures occurring in tabes, dementia, or syringomyelia.

Kuttner, Bender, Schwartz, Werner, and Cranwell have reported cases developing after puncture or stab wounds, and have attributed the presence of bone in the soft tissues to osteogenetic tissue dislodged into the incised wound by the missile.

Lewis reports two cases in which bone developed in the scar of an abdominal operation. He attributes the development of the bone to the metaplasia of connective tissues without osteogenic elements. In one case the linea transversa was incised. This is the remains of a rib which at one time extended toward the median line. There is a question, however, whether or not it contains osteogenetic elements. Phemister and Strauss have shown that bone may be formed in fascia or muscle as a result of the action of acid secretion on the tissue. In one of the cases reported in this article a gastro-enterostomy had been performed, but in the author's opinion not enough gastric juice exuded into the incision to cause bone formation.

Myositis ossificans following posterior dislocation of the elbow causes considerable disability as it seriously interferes with flexion and extension of the forearm. Undoubtedly it develops as a result of periosteal stripping with displacement. The stripping usually occurs over the external and the internal condyles, over the posterior surface of the humerus above the olecranon fossa, and above the supratrochlear fossa.

Myositis ossificans develops rather rapidly in muscle. The roentgen ray shows a shadow at the end of two weeks, and at the end of six weeks this gradually increases in density. Machol describes the roentgen-ray shadow as a dotted veil which gradually increases in density until bony trabeculae are observed. The shadow may or may not appear to be attached to the adjacent bone.

Salman and Peiser reported cases of myositis ossificans developing after infectious processes in muscle, the result of degenerating myositis followed by calcification and bone formation.

Differentiation must be made between hæmatoma in muscle and muscle callus, an interstitial syphilitic process involving muscle, and various types of muscle tumors. It is important to differentiate between myositis ossificans and malignant growths, as amputations have been done when the former was mistaken for malignancy. Periosteal sarcoma and myositis ossificans can be differentiated very definitely by means of the roentgen ray. Myositis ossificans attains its maximum size early and remains stationary for some time or diminishes, while osteogenetic sarcomata grow rapidly without any tendency to remain stationary.

Since myositis ossificans tends to recede after attaining its maximum, manipulative movements to increase the range of motion should not be begun until the process has subsided. Bone should not be removed until it has reached definite form and density and then still continues to cause disability.

RUDOLPH S. REICH, M.D.

Wagner, T.: Acute Osteomyelitis of the Vertebrae (Akute Osteomyelitis der Wirbelsäule). *Deutsche med. Wchnschr.*, 1923, xlix, 181.

The author reports the case of a 14-year-old boy who developed an abscess following an injury which he received while working in a peat-bog. The abscess was incised, but his general condition became more serious. At the end of eight days physical examination revealed stiffness of the neck, weak reflexes, and oedematous swelling of the soft tissues on both sides of the spine at the level of the eighth to the eleventh dorsal vertebrae. Lumbar puncture evacuated pus with an admixture of blood (*staphylococcus pyogenes aureus*). Because of objection on the part of the boy's parents, operation was not performed until four days later. A long incision was made from the ninth to the eleventh dorsal vertebrae. Paravertebral abscesses were found. The vertebrae were bathed in pus. Laminectomy revealed extra- and subdural pus. Death occurred two days later.

Wagner assumes that the focus was in the body of a vertebra and attributes the fatal result to the injury.

PLENZ (Z).

Moreau, J.: Osteochondritis Dissecans of the Knee (L'osteochondrite dissecante du genou). *Arch. franco-belges de chir.*, 1923, xxvi, 131.

Moreau reports the case of a boy aged 15 years who, a year and a half previously, had struck the inner border of the right knee against a metal bar. The blow caused sharp pain, but this soon ceased and the boy continued to walk. Six months later knee symptoms appeared. The knee was painful when the patient got up in the morning, and walking over uneven surfaces caused pain. The pain was referred by the patient to the internal condyle, and pain was elicited on pressure at this point. The boy was able to walk well and to play football. The X-ray showed a zone of necrotic decalcification at the upper border of the internal condyle, bilateral genu valgum, and slight enlargement of the subpatellar tissues.

Treatment with glycerophosphates and other tonics was followed by clinical and functional recovery.

Moreau reviews the subject of osteochondritis dissecans from the research of Morgagni in 1824 down to the investigations of Poulet and Vaillard, Kragelund, and Koenig. According to one theory, the condition is due to spontaneous necrosis of osteo-cartilaginous fragments which sometimes remain in the cavity which they created when they became separated and sometimes remain free in

the joint. According to another theory, the necrosis is due to traumatism.

The condition may become cured spontaneously, as in the author's case, but if the pain is intense and the functional disturbances are marked, operation for the removal of the necrotic fragment may be indicated. After removal of the focus of osteochondritis, the difficulty in walking and the pain usually cease, even when they were marked and of long duration.

W. A. BRENNAN.

SURGERY OF THE BONES, JOINTS, MUSCLES, TENDONS, ETC.

Keck, A.: The Results of Orthopedic Treatment of Tuberculous Coxitis (Resultate der orthopädischen Behandlung der Coxitis tuberculosa). *Ztschr. f. orthop. Chir.*, 1922, xliii, 50.

In the treatment of coxitis prolonged relief from weight-bearing and immobilization are the chief requisites. Heliotherapy does not have the certain and lasting effect which is often attributed to it, and excessive irradiation frequently aggravates the condition. Moreover, heliotherapy alone does not overcome the pain of acute coxitis. Fresh air treatment, which is possible when an ambulatory plaster cast is used, is much more beneficial.

Keck was able to re-examine 130 patients from the Munich clinic after a period of from three to ten years. In half of the cases the condition developed in the first decade of life. One hundred were old cases. Seventy-four per cent of these patients were cured, 15 per cent remained uncured, and 11 per cent died. In non-suppurative cases the period of healing ranged from two and one-half to three years. In suppurative cases it averaged four years. The younger the patient, the more favorable were the results.

Suppuration and fistula formation are not contraindications to the cast treatment. The position—extension with slight abduction—was always good in the cases which came for treatment early. Ankylosis which had been present from the beginning was often corrected. True shortening never occurred. The functional capacity always remained extraordinarily good.

In conclusion, Keck recommends conservative treatment in a sanitarium at a high altitude.

PORT (Z).

FRACTURES AND DISLOCATIONS

Thomas, H. B.: The Treatment of Old, Ununited Fractures of Long Bones, with Special Reference to the Use of the Osteoperiosteal Graft. *J. Am. M. Ass.*, 1923, lxxx, 309.

The author calls attention to four factors of great importance in the technique of transplantation in ununited fractures of the long bones:

1. The length of time which should be allowed to elapse between the healing of a compound infected fracture and transplantation.

2. Transplants without fixation by screws, pins, or suture.

3. The osteoperiosteal or wafer graft.

War surgeons deemed it safe to repair a compound infected fracture after a lapse of six months. Later, after several "flare-ups," operation was delayed for one year.

Mild infection is said to stimulate osteogenesis and favor repair, but latent infection, if disturbed by operative interference, will flare up and render results negative. Army surgeons decided in favor of a two-stage operation. In the first stage the bed was prepared for the transplant and the wound closed. In the second stage, which usually was performed five days later, the placing of the transplant was attempted. If infection set in, the wound was opened widely and irrigated with Dakin's solution.

All unnecessary trauma must be avoided, or an encysted infection may be liberated and vitiate the results. The graft must be prepared with great care and should be made slightly broader than the prepared bed so that it will fit into its bed snugly.

The osteoperiosteal graft is of great value in stimulating osteogenesis. It consists of the periosteum with a thin layer of underlying bone. Often such a graft will take the place of a bone transplant, much trauma being thus eliminated and the chances of infection lessened. The best site from which to obtain such a graft is the anterolateral inner side of the upper third of the tibia. The graft is outlined with a bistoury, and removed with a chisel. Its thickness is controlled by the obliquity of the chisel. It is applied over and around the ends of a transplant, including its body, so that it spreads over the lost bone area and covers the fixed ends of the transplant. This type of graft has been used also when the transplant bridging the gap between fractured ends of two bones has been broken from one of its attachments or has been pulled from a medullary bed.

Delagenière states that the progress of bone repair can be noted in the X-ray examination after the placing of the graft. The new bone laid down takes the form of the graft.

A comparison of various methods of bone grafting shows conclusively that the best results are obtained with the osteoperiosteal method.

With regard to the care of hard ends of old ununited fractures Thomas states that often there is no necessity to denude them thoroughly. Fair alignment is satisfactory.

The postoperative care requires the immediate application of a splint. JOHN MITCHELL, M.D.

Romer, F.: The Treatment of the Clavicle Fractured by Indirect Violence. *Lancet*, 1923, cciv, 889.

In the treatment of the clavicle fractured by indirect violence the author secures the proper relationship of the fragments to one another as far as possible by strapping the scapula in position and

leaving the arm free. When this is done, recovery is very rapid and painless, the arm suffers no loss of function, and union takes place rapidly and in good position.

The most common site of fracture is the middle third of the bone. The position assumed by the patient is typical of the lesion. In his effort to relax the pull of the sternocleidomastoid on the inner fragment, he stands with his head bent down toward the fractured side, and to relieve the drag of the arm on the outer fragment he supports the elbow on the damaged side with the hand of the sound arm.

The principle involved in the method of treatment described is the control of the outer fragment by means of the intermediary, the scapula. In order to reduce the deformity, the arm on the injured side is raised at a right angle with the body. This brings the outer fragment up to the level of the inner fragment. Romer then stands behind the patient and draws back both shoulders firmly so that the scapula is pushed back as far as possible, the arm still being kept raised at a right angle. When reduction of the deformity has been effected in this manner, apposition of the fragments is secured by fixing the scapula in the position in which it now lies. This is done as follows:

With the injured arm still raised at a right angle, a thin layer of Gamgee tissue or cotton-wool is placed in the axilla. The end of a long strip of adhesive plaster is then fixed to the top of the shoulder joint, just over the acromion, and brought up under the axilla to the front where it is crossed over the top of the shoulder at the acromial end of the clavicle. This strip, which encircles the shoulder joint, is next brought diagonally across the scapula to below its angle. A second strip of plaster, about $1\frac{1}{2}$ in. in width, is brought with firm pressure from just above the nipple over the clavicle to below the angle of the scapula, much in the position of an ordinary brace. A third and a fourth strip are applied in the same way so that they slightly overlap each other and cover the entire surface of the clavicle. The arm is then lowered gently.

No support is required beyond that given by an ordinary sling, which is worn for the first two days to prevent discomfort from the weight of the arm. The use of the arm is restricted to underhand movements, but the patient seldom desires to do more. The injured parts are massaged daily by a skilled masseur for at least a week. The movements of massage can be effectively performed over the plaster. As a rule the sling can be discarded at the end of about ten days. The patient is then encouraged to make more general use of the arm. The strapping is renewed at the end of the first four days, and again from time to time as occasion demands. By the end of a fortnight all movements are usually possible, but care is necessary to prevent undue strain, such as that of lifting and the pushing of heavy weights. The parts are kept supported by strapping for at least three weeks, even though no pain is experienced on movement.

The advantages to be gained from this method as compared with the treatment generally employed include entire freedom from the pain caused by keeping the arm and hand rigidly immobile, which during the first few days is often very intense and far exceeds any suffering that may be experienced at the site of fracture. In addition, there is no subsequent stiffness of the elbow and forearm, and as the arm is in use, muscle wasting is prevented when the union is complete. The patient is able to dress himself normally during the entire period of convalescence, and can use the arm on the injured side for writing, feeding, and other simple movements without fear of harm. The period of disability is considerably lessened. The average period of disability when other methods are used is between six and eight weeks, but in twenty of the author's cases taken at random it was twenty days. When possible, the patient should spend twelve hours flat on his back—especially when reduction was difficult—because, as the scapula is unable to rotate forward, the bones will then gradually drop into position and the deformity will be decreased.

F. WALTER CARRUTHERS, M.D.

Silberstein: The End-Results of the Non-Operative Treatment of Congenital Luxation of the Hip (Die Späetresultate der unblutigen Behandlung der Luxatio coxae congenita). *Verhandl. d. Ges. f. Chir.*, Moscow, 1922.

The Lorenz non-operative reduction of congenital luxation of the hip has superseded the radical method of Hoffa. The author reports on thirty-five cases. Healing takes place through the shrinking of the capsule, which fixes the head in the acetabulum. The development of a limbus cartilagineus (proved by the X-ray) is also very important in the subsequent functioning of the joint. Good final results

are obtained in 70 to 90 per cent of the cases of unilateral dislocation and in 30 to 60 per cent of the cases of bilateral dislocation. Recurrence is due chiefly to anteversion, and frequently the latter must be corrected by osteoclasis in the lower third of the femur.

The first dressing is applied in the axillary position, the second (after about two months) in the median position, and the last (after two months more) in the adducted position. BLUMENTHAL (Z).

Estor, E., and Aimes, A.: Congenital Luxation of the Tendons of the Lateral Peroneal Muscles (La luxation congénitale des tendons des muscles péroniers latéraux). *Rev. d'orthop.*, 1923, xxx, 5.

Although traumatic luxation of the lateral peroneal tendons is not unusual, about fifty cases being known, the authors have been able to find in the literature only nine cases of congenital luxation of these tendons. The latter condition may be often unrecognized as it is painless and may cause little or no disturbance of function.

The authors review the normal anatomy of the region. Congenital luxation is due to malformation of the retroperoneal bony fossa or insufficiency of the tendons.

In seven of the cases collected by the authors the malformation was bilateral. In the two others it was on the left side only. Six of the subjects were males, two were females, and the sex of the other was not stated. As a rule, malformations are found also in other parts of the body.

Operative measures are indicated only in cases in which there is considerable disturbance of function. The type of operation will depend upon whether the deformity is due primarily to a shallow bony trough or tendon insufficiency.

W. A. BRENNAN.

SURGERY OF THE BLOOD AND LYMPH VESSELS

BLOOD VESSELS

Odermatt, W.: Pain Sensibility of Blood Vessels and Vascular Reflexes (Die Schmerzempfindlichkeit der Blutgefäesse und die Gefässreflexe). *Beitr. z. klin. Chir.*, 1922, cxxvii, 1.

By histologic findings and the results of experiments the fact is established that on and in the walls of the vessels there are nervous elements with motor and sensory function. It must be assumed that there are autonomous centers on or in the walls of vessels. The blood vessels are supplied from the sympathetic nervous system. It is known that severe pain may appear in parts governed by the sympathetic nerves. In his own cases operated upon for goiter the author has noted that in some vessels there is marked pain from the ligature, while in others there is none. This pain is located in the peri-arterial tissue rather than in any of the various coats of the artery itself. In the vein, ligation does not cause pain. From experiments on animals performed by himself and by others, the author arrives at the following conclusions:

Injections into arteries from which the blood cannot flow into the arterioles and capillaries are never painful. The injection of certain solutions into arteries in which the passage is open causes pain in conscious or lightly anæsthetized animals in from one and one-half to two and one-half seconds after the beginning of the injection. This is the time required for the passage of the solution from the point of injection into the capillaries where the pain occurs.

The same injections are accompanied by a change in the blood pressure, but if the sensation of pain is prevented by deep narcosis, the change in the general blood pressure does not occur. The alteration in the general blood pressure consists in a simple decrease or a simple increase or possibly a primary decrease with a secondary increase or vice versa.

The nature of the change in the pressure seems to depend upon the severity of the irritation. When intravenous injections were given experimental animals the same reaction appeared in about the same length of time. To explain this, we must presuppose a sensitiveness in the inner coat of the right heart. Peri-arterial injections of the same solutions cause immediate pain and change in the blood pressure, while in intra-arterial injections the reaction requires from one and one-half to two and one-half seconds for its appearance. In peri-arterial injections the pain appears in the peri-arterial plexus, while in intra-arterial injections it is first awakened in the capillary nerves. The pain appears on intra-arterial injection, even when the peri-arterial plexus is damaged, a fact which con-

stitutes further proof that it arises, not in the arteries, but in the capillaries and that the capillaries are not offshoots of the peri-arterial plexus. Sensitiveness to material circulating in the blood is an attribute of the capillaries. On the other hand, the arteries and the arterioles have the specific function of reacting to stretching of their walls with local or general circulatory changes or pain.

HAECKER (Z).

Vimtrup, B.: Studies on the Anatomy of the Capillaries. I. The Contractile Elements of the Vascular Wall of the Blood Capillaries (Beiträge zur Anatomie der Capillaren. I. Ueber contractile Elemente in der Gefässwand der Blutcapillaren. *Bibliot. f. Læger*, 1922, cxiv, 416.

Vimtrup was able to demonstrate the markedly branching cells previously found by Rouget in the capillaries of living larvæ of salamanders and frogs. The protoplasmic processes of these surround the capillaries and produce a constriction by their own contraction. In the dilated capillary the nucleus of such a cell is flat, while in the constricted capillary it is oval or spherical and protrudes from the surface. With medium contraction, Vimtrup was able to demonstrate a fibrillar structure in the protoplasm. The contraction always begins in the cell and proceeds toward both sides. The same conditions are seen in the web and membrana nictitans of the adult frog; the contraction of the former may be produced by stimulation of the ninth or tenth sympathetic ganglion. Transitions to the smooth muscle cell are found in the arterioles and venules.

The suggestion is made that these protoplasmic cells be called "Rouget cells." DRAUDT (Z).

Portmann, G., and Dupouy, P.: Pharyngeal Aneurisms of the Internal Carotid (Contribution à l'étude des anévrysmes pharyngés de la carotide interne). *Arch. méd. belges*, 1923, lxxvi, 97.

Aneurisms of the internal carotid in its juxta-pharyngeal course at the level of the tonsil are often diagnosed as tonsillar abscesses or adenoid-sarcoma.

The case reported by the authors was that of a 68-year-old man who had an expansile tumor in the left pharyngeal area back of the posterior pillar. There was no pain and no difficulty in swallowing or talking. The larynx was normal. The superficial temporal pulses on each side were synchronous and the eyes were negative. There was no heart murmur. The Wassermann test was negative. The tumor was a fusiform aneurism.

In such cases there may be symptoms of nerve pressure on one or all of the last four cranial nerves. The authors discuss the pathology of the contents

of the aneurismal sac. In a fusiform aneurism the blood shows no tendency to leave any clot deposits on the arterial walls. In sacciform aneurism laminated clots may effect a cure.

Aneurism of the internal carotid lacks one of the principal symptoms of aneurism, namely, retardation of the pulse on the affected side. Often an arterial blow is heard and felt. All of the other symptoms are those caused by compression of neighboring structures.

The cause is that of all aneurisms—weakness of the arterial wall. The exciting cause is variable. The condition may follow an acute or chronic infection, tuberculosis, syphilis, gout, auto-intoxication, lead poisoning, alcoholism, etc. Trauma may play a part, especially in old persons. Congenital aneurisms are known.

Certain physical peculiarities favor the formation of aneurism of the internal carotid: (1) the large caliber of the vessel; (2) the proximity of bone just before the entrance to the carotid canal, which presents a hard surface against which the artery constantly beats; (3) the low degree of development of the musculo-elastic media at the level of the bifurcation of the common carotid; (4) the twisting course of the vessel; and (5) the lateral and posterior flexion movements of the cervical spine.

In some cases the onset of the condition is very sudden, but usually it is slow and insidious and the pharyngeal tumor is discovered only by chance. The aneurismal tumor may be both cervical and pharyngeal or pharyngeal and palatine, but never cervical alone. The cervico-pharyngeal type is the classic type. The cervical swelling may appear in front of the ear, on the lateral aspect of the neck, or below the lobule of the ear. The skin covering it is normal, and the tumor shows pulsation synchronous with the pulse. During pressure on the common carotid these pulsations disappear. Pressure is not painful. The soft fluctuant tumor seems deeply situated beneath the sternocleidomastoid muscle. Expansile pulsation and a systolic thrill are usually present. The stethoscope reveals a soft systolic intermittent blow. X-ray examination may demonstrate the aneurismal pulsation. The patient's head is sometimes bent toward the shoulder of the affected side, while his face is turned toward the opposite side as in torticollis. To develop into a cervical tumor the aneurism must first overcome the intermuscular cellular adipose tissue from around the lower portion of the internal carotid out and upward toward the skin surface. It then has considerable volume.

The aneurism develops easily within and forward toward the pharynx because it is bounded behind by the vertebral column and laterally by the styloid and its attached muscles. It therefore enlarges toward the mouth, pushing the posterior faucial pillar forward. The pharyngeal tumor may then lie behind or just at the level of the tonsillar fossa. The expansile pulsation may be felt by placing one finger on the tonsil and another on the neck.

Dyspnoea and dysphagia may be present, and fluids may be regurgitated into the nostrils on account of interference with palate action. The last four cranial nerves and the sympathetic nerves may suffer from the presence of the tumor. Myosis denotes paralysis of the sympathetic nerve, and mydriasis, excitation of the nerve. Laryngeal phenomena may dominate. Hoarseness, breaking voice, and dyspnoea from paralysis of the vocal cords are other signs. Compression of the internal jugular may lead to vertigo and syncope and these are increased by digital compression. Only one case of the palatal type has been reported. The pure pharyngeal type, like the cervico-pharyngeal type, is minus the cervical symptoms.

Pharyngeal aneurisms of the internal carotid must be differentiated from abscess of the pharyngeal wall, peritonsillar abscess, pharyngeal tumor, lymphoma, fibrous tumor of the pharynx, adenoma of the palate, vascular tumors, and aneurisms of the vertebral, the ascending pharyngeal, and the inferior palatine arteries.

The aneurism seldom disappears spontaneously. It usually tends to enlarge and compress surrounding structures. Rupture causes sudden death. It may open externally or internally. Sometimes severe pain develops. The duration of the condition may be several years.

The treatment is ligation of the internal or common carotid. Ligation of the internal carotid presents many difficulties, especially if the sac extends low down to the bifurcation, and is as severe as that of the common carotid.

Measures to maintain a low blood pressure and to provoke clot formation in the sac may be used. Iodides may be employed for their action on the vessel wall.

KELLOGG SPEED, M.D.

Cawadias, A., and Catsaras, J.: Thrombosis of the Mesenteric Artery. *Lancet*, 1923, cciv, 949.

The patient presented himself for examination with a history of intermittent claudication of six years' duration, recent dyspnoea, and paroxysmal pain in the arms and the substernal region of such intensity that physical effort was impossible. Physical examination revealed enlargement of the heart in the transverse diameter, some arrhythmia, and a systolic murmur at the apex. There was no pulsation in the dorsalis pedis arteries.

Eight days after the examination the patient experienced a sudden severe abdominal pain and vomited bluish-black material. The abdomen became rigid and tender on pressure. No gas or faeces passed per rectum. A diagnosis of mesenteric thrombosis was made. The patient died three hours after his admission to the hospital.

At autopsy, eight hours later, a blackish discoloration of the lower segment of the ileum, the caecum, and the lower part of the ascending colon was found. The mucosa of the diseased segment of small intestine showed numerous gas bubbles. The intestine was emphysematous and the mucosa cov-

ered with a continuous layer of bacteria, chief of which was a gram-positive bacillus. In the circulatory system sclerosis of both coronary arteries and marked atheromatous changes in the thoracic and abdominal aorta were found. The iliac arteries were completely calcified and markedly narrowed. The left femoral artery was completely obliterated by a thrombus. The superior mesenteric artery was hardened and obliterated above the origin of the right superior colic artery. The small mesenteric veins were filled with blood and contained many gas bubbles. The liver was anæmic and light brown.

In this case mesenteric thrombosis followed a pluri-arterial syndrome, but was not preceded by symptoms of abdominal arteriosclerosis. Although the vessel thrombosed was not a terminal vessel, the anastomotic channels were not sufficient to establish a collateral circulation. With obliteration of the mesenteric artery the pressure in the veins increased and a retrograde inflow from the portal vein territory was provoked. As a result, hepatic anæmia developed. Diminished resistance of the intestinal mucosa resulted in growth of the bacillus *phlegmonis emphysematosæ*.

WILLIAM J. PICKETT, M.D.

Buerger, L.: The Operative Treatment of Embolism of the Large Arteries: A Report of Two Cases. *Surg., Gynec. & Obst.*, 1923, xxxvi, 463.

The diagnosis of the presence and location of a clot in the upper extremity is not difficult. In cases in which a clot occurs in the lower extremity the surgeon must be guided by the limitation of the change in color and temperature and the presence or absence of pulsation in the anterior and posterior tibials, the dorsalis pedis, and other vessels.

The author reports the case of a patient suffering with chronic endocarditis who experienced a sudden cramp in the right leg which then became blanched, cold, and gangrenous. No pulsation from the femoral downward could be detected. Amputation was done. On the afternoon of the same day the right upper brachial became suddenly the site of a clot. Six hours later the artery was exposed under novocaine and the clot felt in the vessel at about the level of the origin of the superior profunda. A longitudinal opening was made in the vessel and the clot and an accretion clot were removed, the vessel then being closed with a fine silk suture. Pulsation in the radial and ulnar arteries and color and warmth of the member returned at once. The wound healed by primary intention. Seven days later the patient developed an embolus of the iliac artery on the left side, but refused operation. Gangrene developed and two days later cerebral embolism and death occurred.

A second case was similar except that the patency of the vessel could not be restored for some distance below the site of the thrombus. This was the case of a man who developed an embolism of the right brachial artery three days after an operation for gangrenous appendicitis. The vessel was opened

and the clot removed. Pulsation returned to the brachial artery below the site of the clot, but was not present in the radial artery. This seemed to indicate that secondary clots had lodged in the peripheral vessels. The thumb became cyanotic and was later removed. Trophic disturbances over an area on the back of the forearm and muscular palsy developed. The brachial wound showed evidence of induration and deep infection involving the musculospiral and ulnar nerves. A blood culture was positive for hæmolytic streptococci. The patient recovered and left the hospital. Median and ulnar nerve lesions improved to complete recovery following electric stimulation and exercise. Seven months later the radial pulse had been re-established, probably through collaterals.

Operative removal of an embolus should be carried out early before a toxic element or bacteræmia may vitiate the result and before the original clot can grow by stagnation or fragments are broken off.

WILLIAM J. PICKETT, M.D.

BLOOD AND TRANSFUSION

Unger, L. J.: The Transfusion of Blood from Immunized Donors. *Laryngoscope*, 1923, xxxiii, 145.

The author discusses the value of blood transfusion in cases of sepsis, and as a result of his observations concludes that transfusion should consist of whole non-citrated blood from donors of the same group as the recipient who have been immunized by huge doses of a vaccine made from the culture of the septic patient's blood. "Starting with an initial dose of 1 billion, daily injections are given and as much as 100 to 150 billion organisms are given in a week. These donors develop demonstrable immune bodies." It requires nine or ten days for a donor to develop immune bodies.

Unger reports 106 transfusions performed in sixty-four cases of bacteræmia. In forty-two cases the blood of an ordinary healthy person was used. Nine of the patients recovered. In the second group, of seven cases, the donors were vaccinated with the organism obtained from the patient's blood. None of the patients recovered. In the third group, of fifteen cases, eight received blood from a donor who had been immunized with the organism obtained from the blood of some other patient; three recovered. Seven were transfused with the blood of a donor who had been immunized with the organism obtained from the patient's blood; five of these recovered.

The author states that sodium citrate markedly diminishes the complement in blood which plays an important rôle in destroying bacteria; that it extracts from the walls of the red blood cells a substance which renders the plasma anticomplementary; that it reduces the phagocytic index; and that it destroys the opsinins in blood. He does not indicate the basis for these statements.

SUMNER L. KOCH, M.D.

Stegemann, H.: Hæmostasis Induced by Blood Transfusion (Blutstillung durch Bluttransfusion). *Arch. f. klin. Chir.*, 1923, cxxii, 759.

The author reports experiences with blood transfusion in Kirschner's clinic. The cause of the hæmorrhage in five cases was the opening of a peritonissilar abscess, re-fracture of the femur for faulty union, gastro-enterostomy for ulcer of the stomach, gastro-enterostomy for ulcer of the duodenum, and resection of the stomach for gastric carcinoma in one case each. Two cases were complicated by hæmophilia. In three cases of ulcer the hæmorrhage was spontaneous. Adrenalin, hæmostatics, and coagulen were used without result; only blood transfusion arrested the hæmorrhage. Transfusion is indicated in parenchymatous bleeding and bleeding from small vessels. In hæmorrhage from large vessels the local surgical methods of effecting hæmostasis are indicated.

Transfusion operates directly by adding to the blood the substances necessary for coagulation, particularly vasoconstricting substances, and acts indirectly through the irritation induced by the foreign blood which causes these substances to appear in the body of the patient by activating the cell processes concerned in coagulation.

The field of usefulness of blood transfusion includes all cases of hæmophilia and hæmorrhagic diathesis in which the substances necessary for coagulation are lacking; also severe postoperative hæmorrhage. Transfusion before operation as a prophylactic measure to increase coagulation is to be considered only in the cases of known hæmophiliacs.

Stegemann recommends direct transfusion with Oehlecker's apparatus. This method excels all others in simplicity, reliability, and accuracy of dosage. To cause coagulation, 200 c.cm. are sufficient. To increase the supply of blood, larger amounts are necessary. GEBELE (Z).

Sidbury, J. B.: Transfusion Through the Umbilical Vein in Hæmorrhage of the Newborn: Report of a Case. *Am. J. Dis. Child.*, 1923, xxv, 290.

Sidbury gives a brief history of transfusion for hæmorrhagic disease of the newborn, describes the routes which have been used, discusses the etiology of the disease, and reports a case he treated by transfusion through the umbilical vein. He arrives at the following conclusions:

1. The umbilical vein may be patent and accessible for transfusion up to, and including, the fourth day of life.
2. If patent, the umbilical vein is the most accessible vein up to the fourth day.
3. The danger of the formation of a clot in the umbilical vein is very slight.
4. Transfusion through the sinus in cases of intracranial hæmorrhage may increase intracranial pressure.
5. Transfusion through the superior longitudinal sinus is comparatively simple for one who is ex-

perienced, but the umbilical route is best for one who is inexperienced in the use of the sinus route

6. In infants as young as 2 or 3 weeks, the median basilic vein is always large enough to admit an 18-gauge needle, and its use is generally preferable to that of the superior longitudinal sinus, though it must be dissected out. E. C. ROBINSHEK, M.D.

MacAdam, W., and Shiskin, C.: The Cholesterol Content of the Blood in Anæmia and Its Relation to Splenic Function. *Quart. J. Med.*, 1923, xvi, 193.

The authors have followed the changes in the cholesterol content of the blood after splenectomy in three cases of hæmolytic jaundice and one of splenic anæmia and have attempted to correlate any variation in the fragility of the red corpuscles, etc. in these conditions. At the same time they have carried out an investigation on the total cholesterol of both plasma and red corpuscles in a series of twenty-five cases of diseases of the blood, all of them different types of anæmia except two cases of polycythæmia vera.

They draw the following conclusions:

1. The cholesterol content of the blood plasma is diminished in anæmic conditions, although the decrease may not be striking unless the red cell count is less than 50 per cent of the normal. In various grades of anæmia there is some decrease in the cholesterol of the red cells, but the cell content is much less subject to variation than that of the plasma.
2. There is no noteworthy difference in the blood cholesterol in cases of secondary and pernicious anæmia, nor do the leucocytes appear to be correlated with variations in the plasma cholesterol.
3. After removal of the spleen in cases of familial acholuric jaundice and splenic anæmia there results a gradual but very considerable increase in the total cholesterol content of the blood plasma, while that of the corpuscles varies within a relatively narrow range. Thus in the cases of hæmolytic jaundice the cholesterol values of the plasma three months after splenectomy were 0.160, 0.234, and 0.259 per cent as compared with 0.060, 0.112, and 0.094 per cent before operation.
4. Although splenectomy is followed by a progressive improvement in the red-cell count, the increase in the lipoids of the plasma appears not to be related to any change in the corpuscles themselves. So far as our data go, their abnormal fragility in hæmolytic jaundice persists three months after removal of the spleen, although the icteric tint and the urobilinuria disappear within ten days of operation.
5. There is no evidence that an abnormally large combination of cholesterol as ester is a factor in the production of anæmia, and the decrease in the unsaturated fatty acids of the blood following splenectomy in cases of anæmia, recorded by King, even if confirmed, does not appear to be related to the increase in cholesterol.
6. The evidence pointing to a very considerable increase in the cholesterol of the blood plasma after

splenectomy in hæmolytic jaundice seems conclusive, but the relationship of this hypercholesterolæmia to the cessation of splenic function is quite undefined.

MORRIS H. KAHN, M.D.

LYMPH VESSELS AND GLANDS

Bonn, R.: The Symptoms and Treatment of Traumatic Subcutaneous Extravasation of Lymph (Zur Klinik und Therapie der subcutanen traumatischen Lymphextravasate). *Deutsche Ztschr. f. Chir.*, 1922, clxxvi, 53.

To the rare clinical picture of subcutaneous traumatic lymph extravasation Bonn adds four cases. The condition arises through the tangential application of blunt force which causes the formation of pockets between the skin and fascia. Among the author's cases there is one that is etiologically significant in that the extravasation was brought about by massage. The elasticity of the skin is of importance. The less it is, as for example in changes due to scars and oedema, the slighter the trauma necessary to produce the condition.

The fact that only lymph is collected is to be explained by thrombotic closure of the blood vessels by the trauma. The non-flowing, oozing lymph slowly forms the lymph cyst, which in its early stages is recognizable only from the abnormal movability of the skin.

The practical classification of the cases into small, medium, and large lymph extravasations is in accordance with therapeutic procedure. Small cysts recede after puncture and compression bandaging. Those which are of medium size must be extirpated. The large cysts are best treated by wide opening,

followed by the application of iodine to destroy them. Puncture fails to effect a cure because of the absence of the aseptic hyperæmia caused by the blood, which is necessary if the walls are to grow together.

KOENIG (Z).

MISCELLANEOUS

Unger, E., and Heuss, H.: Continuous Intravenous Infusion (Ueber intravenoese Dauerinfusion). *Therap. d. Gegenw.*, 1923, lxiv, 15.

Continuous intravenous infusion as recommended by Friedemann and Loewen was tried as a last resort in eighty-two cases, those of children and adults. Eighteen of the patients lived. The quantity of the liquid given in twenty-four hours varied from 3 to 11 liters. The infusion was usually continued for two or three days, but in especially grave cases was given for four or five days. The technique was the ordinary one. After venesection a blunt cannula was tied into the ulnar vein and the arm placed on a straight splint. The fluid was given at the rate of from 60 to 100 drops a minute. Special warming apparatus was dispensed with since it could be safely left to the body to raise these few drops a minute to body temperature.

The main indications are grave collapse, extensive burns, and marked dehydration (typhoid, dysentery, cholera). When the hæmoglobin is low, and in cases of arteriosclerosis, care is necessary with regard to the quantity given. Undesired sequelæ were oedema, hypostatic pneumonia, and thrombosis of the arm vein. The last-mentioned never caused any further complication.

KINDL (Z).

SURGICAL TECHNIQUE

OPERATIVE SURGERY AND TECHNIQUE; POSTOPERATIVE COMPLICATIONS

Czermak, H.: The Importance of Grippe in the Development of Postoperative Complications, Particularly Postoperative Sepsis (Die Bedeutung der Grippe fuer das Zustandekommen postoperativer Komplikationen, insbesondere postoperativer Sepsis). *Arch. f. klin. Chir.*, 1923, cxxii, 916.

Grippe is surgically important as much in the development of postoperative complications as in its immediate surgical complications. The former are due principally to the weakening of the organic defense against pathogenic bacteria. Therefore, during an epidemic of grippe, surgical interference should be restricted to absolutely necessary operations, especially in cases of disease of the upper respiratory tract. It is of great importance also, as von Haber states, to inquire whether the patient has had an attack of grippe during the past four months. Patients with grippe should be isolated, and during an epidemic of grippe surgical patients should be carefully protected against every possibility of infection.

RAESCHKE (Z).

ANTISEPTIC SURGERY; TREATMENT OF WOUNDS AND INFECTIONS

Young, H. H., White, E. C., Hill, J. H., and Davis, D. M.: A Further Discussion of Germicides and the Presentation of a New Germicide—Meroxyl. *Surg., Gynec. & Obst.*, 1923, xxxvi, 508.

While the position of mercurochrome as a valuable germicide has been established, further search has been made for a mercurial germicide with sufficiently low toxicity to permit its use in body cavities with little irritation of delicate tissues and penetrating power without staining. "Meroxyl" has some of these desirable features intensified at the expense of others. It is free from staining qualities and is more powerful as a germicide than mercurochrome. However, its toxicity is higher, it has a greater precipitating action on protein, and has no apparent power to penetrate tissues.

Meroxyl should be regarded as a complement of mercurochrome rather than a substitute for it.

The authors give a detailed description of the chemical structure and physical properties of the drug and of the methods used to demonstrate its penetrating power, its toxicity, and its action *in vitro* chiefly against bacillus coli, staphylococcus aureus, and the gonococcus.

Meroxyl has been used in the urological wards of the Johns Hopkins Hospital and has been valued for its germicidal power and its non-staining and non-irritating properties.

In three cases an attempt was made to sterilize an infected kidney pelvis by irrigation with a 1:1,000 solution of merxyl through a small tube laid in the pelvis at time of operation. Only one case was benefited, but as the presence of the foreign body may have been the deterrent factor, the method should be tried further.

In a series of cases of acute gonorrhœa it was found that merxyl is the most powerful gonococcide available, but like other drugs is unable, in many cases, to reach all the gonococci.

Meroxyl has been used to irrigate catheters and urinary drainage tubes, for instillations before and after instrumentation, and for injection through ureteral catheters just before their removal. It has seemed to prevent infection in these cases, particularly when used before and after the passage of sounds.

In wounds in which infection was especially feared, as in cases of hypospadias in which there were small, uncovered areas or drains, skin grafts were used, or separation of the skin edges occurred, merxyl has been used as a wet dressing. Dakin's solution is preferred as long as necrotic tissues are present, as merxyl does not dissolve sloughs nor act as a deodorant.

Meroxyl solution has been used to irrigate wounds with deep infection but without necrotic tissue. When Dakin's solution was used, non-tuberculous wounds healed uninterruptedly. Tuberculous wounds remained clean, although healing was not noticeably hastened. The solution did not retard granulation. It did not irritate the skin. A 1:1,000 solution was used.

In the treatment of ordinary chronic cystitis, with merxyl marked improvement was noted.

In the treatment of postoperative cystitis, the urine, if not sterilized, was often improved and made macroscopically clear. In cases not reacting satisfactorily, deep infections of the prostate, seminal vesicles, or kidneys were found, or the infective organisms were harbored by diverticula.

Reports from the Department of Otolaryngology of the Johns Hopkins Hospital lead to the conclusion that the drug is of value in treating infections of the ear, nose, and throat; probably also the eye and in dentistry. It has greater germicidal potency than mercurochrome, and consequently can be more effective when the bacteria can be reached by application or irrigation. However, because of its greater power of tissue penetration, mercurochrome is probably more effective for deep infections such as those in sinuses or glands.

The details of technique and the selection of the solution strength for merxyl in the treatment of wounds and inflamed mucous surfaces has not been

fully established. The frequency of irrigation necessary for the best results has not been fully worked out, nor has it been definitely determined in which cases merxyl is to be preferred to Dakin solution or other standard antiseptics. However, the results have been sufficiently definite to give promise of a wider usefulness for this antiseptic.

V. E. DUDMAN, M.D.

Aschoff, L., and Reinhold, G.: Changes in the Motor Ganglion Cells in Wound Tetanus (Die Veränderungen der motorischen Ganglienzellen beim Wundstarrkrampf). *Veröffentl. a. d. Kriegs-u. Konstitutionspath.*, 1922, iii, 51.

In eleven cases of wound tetanus the brain-stem and spinal cord were systematically examined and sections were made of the elongated cervical, thoracic, and lumbar cord. Changes in the nuclei and tigroid-substances of the motor cells were demonstrated by staining with cresyl-violet and pyronin. There was no characteristic picture of tetanus, and no other pathologic change. In some instances the structures were entirely normal. In others, there were marked changes without sharp demarcation but postmortem decomposition was responsible for these. Proving this, were the observations on hæmolysis made in the vessels of the brain and cord which were due to the solution of hæmoglobin in the juices of the ganglion-cell nuclei.

KREUTER (Z).

ANÆSTHESIA

Dale, H. H., Hadfield, C. F., and King, H.: The Anæsthetic Action of Pure Ether. *Lancet*, 1923, civ, 424.

Dale, Hadfield, and King review the literature on ether as an anæsthetic since its early use in 1846. It is generally believed that the active principle in the induction of anæsthesia is di-ethyl ether. From a series of experiments on animals and an investigation in clinical cases the authors conclude that the ether of choice for anæsthetic purposes is ether which is free from all by-products and contaminations.

This conclusion is directly opposite that of Baskerville and Hamor reported in 1911 and that of Cotton reported in 1917. Cotton claims that by experiment he determined that pure ether becomes fit for anæsthesia only after the addition of ethylene gas 2 per cent and carbon dioxide 0.5 per cent. The use of ethylene gas as an anæsthetic agent is very old, having been suggested by Nunnally of Leeds in 1849. Lombard uses cotton-process ether and states that ethylene acts as an asphyxiant like nitrogen.

Wallis and Hewer, in a paper published in 1921, claimed that pure ether freshly prepared will not produce surgical anæsthesia, even when large quantities are used, but that after certain ketones are added to it, it becomes a very splendid anæsthetic devoid of many of the objectionable features of ordinary anæsthetic ether.

The authors describe the preparation of the pure samples of ether in detail. Some of them were made from ethyl alcohol, some from ordinary ether, and some from "ethanesal." The clinical results observed in the use of these samples were practically the same in both patients and animals. The manner in which the pure samples were obtained differs slightly from the processes used by others.

Several packages of "ethanesal" purchased on the open market were found to contain 95.5 per cent ether, 4 per cent butyl alcohol, 0.5 per cent alcohol, and an aldehyde. According to the numbers and markings on the bottles, the various samples probably came from different lots. No ketones were found in any of these samples. BEN MORGAN, M.D.

Huck, J. G., and Peyton, S. M.: A Study of Iso-Agglutinins Before and After Ether Anæsthesia. *J. Am. M. Ass.*, 1923, lxxx, 670.

According to Levine and Segall, prolonged etherization may cause a temporary change in the iso-agglutinative phenomena. As the authors had never observed untoward results from transfusions following ether anæsthesia when the bloods were matched before the operation, studies were made by them to determine whether there was a change in the iso-agglutinative phenomena, and if so, why noticeable effects were not obtained in the cases of patients given transfusions after prolonged ether anæsthesia. Twenty-five patients about to undergo operations were selected for this study. From the findings the authors draw the following conclusions:

1. There is no change in the blood groups after ether anæsthesia.
2. No change of iso-agglutinative phenomena was produced by shaking with ether for one hour, or by four hours' contact at 37 degrees C.
3. Transfusions can be performed safely within twenty-four hours after prolonged ether anæsthesia provided a suitable donor was found previous to the beginning of anæsthesia.
4. Severe reactions from transfusions after ether anæsthesia are due apparently to some other cause than a change in iso-agglutinative phenomena.

E. C. ROBITSHEK, M.D.

Frei, W., and Grand, H.: The Theory of Narcosis (Beitrag zur Theorie der Narkose). *Ztschr. f. d. ges. exper. Med.*, 1923, xxxl, 350.

Like Winterstein, the authors define narcosis as a condition in which the property of living substance to react is decreased by a chemical agent. Within certain bounds, the intensity of narcosis varies directly with the concentration of the agent used. All cells can be narcotized, but of the processes between the narcotic agent and its effect we know nothing.

In all methods of inducing narcosis the narcotic must become mixed with the body fluids. Part of it must therefore be diffused in the cells, especially those of the nervous system, the quantity depending upon the solution, absorption, and chemical affin-

ities. The vital processes of the cell may be influenced physically, physico-chemically, or primarily chemically. Even marked disturbances in cell metabolism are possible without chemical changes.

The authors studied a number of little known and not yet used narcotics to find the relation between their physical or physico-chemical properties and their narcotic effect. These substances were derivatives of salicylic and barbituric acids. Determinations of the solubility of the salicylic acid derivatives resulted in a grouping somewhat different than that to be expected from Overton's determinations of its solubility in olive oil and water. An isopropyl rest decreased the water solubility more than two ethyl groups. The ethyl groups decreased the water solubility more than the allyl groups, and iso-amyl more than isopropyl.

With regard to surface tension the experiments affirmed the already known fact that the introduction of an alkyl group into the sequence methyl, ethyl, isopropyl, decreases the surface tension and this effect is made considerably greater by two alkyl groups. If narcotic power depends on surface tension, then substances which are not narcotic in themselves but increase or decrease surface tension must be able to influence narcosis positively or negatively.

Regarding the influence of the chemical structure on diffusion, the experiments demonstrated again that the alkyls, which often cause a similar change in the properties of a compound, occasionally change a property positively or negatively, depending upon the nucleus to which they are bound.

A comparison of diffusibility and solubility and surface tension showed that the salicylic acid series diffused through the lipid portion of the membrane,

and that in the barbituric acid there was a parallelism between diffusibility, surface activity, and water solubility.

The relative narcotic power was studied in numerous animal experiments. In the salicylic acid series the isopropyl combination was strongest, but all were surpassed by the allyl combinations.

The power of the salicylic and barbituric acid combinations was also measured for beginning narcosis and for parietic and lethal doses. In the case of the salicylic acid derivatives the relation of the narcotic effect to the chemical structure and the chemico-physical properties was found to be complicated: surface activity and physiological efficiency were parallel or changed one another. Water solubility and diffusibility were found to correspond to the narcotic effect, i.e., good water solubility, poor diffusibility, and good narcotic properties. With regard to the barbituric acid series the conclusion was drawn that every increase in diffusion and surface activity with a decrease of the water solubility increased the narcosis.

Thus in different narcotics different factors influence the mechanism of the narcosis. At any rate, physical processes influence the quantity of toxin supplied the cells. The true cell changes, however, are not known. Perhaps the mechanism of narcosis is so complicated that one substance or group of substances acts through lipid changes and another through protein combinations.

Possibly certain disturbances of ferment action are the basis of narcosis, different ferments being inhibited by different narcotics. The asphyxiation theory as an inclusive explanation cannot be maintained.

KULENKAMPEFF (Z).

PHYSICO-CHEMICAL METHODS IN SURGERY

ROENTGENOLOGY

Scott, S. G.: A Method for the Opaque Meal Examination of the Stomach. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Electro-Therap., 35.

After trying out a number of methods for the examination of the stomach by means of an opaque meal and the roentgen ray the author has come to the conclusion that the method of choice is a systematized roentgenoscopic examination, as this will reveal not only the grosser lesions but also very small gastric and duodenal ulcers and is rapid, accurate, and relatively inexpensive. In over 94 per cent of the cases which have passed through his department within the last three years it has led to a correct diagnosis which was confirmed by operation or autopsy. The details of his technique are as follows:

A vegetable purgative, preferably castor oil, is administered thirty-six or forty-eight hours before examination, and the patient then put on a light diet but not starved. The last meal, which consists of fluids, should not be taken less than an hour before the examination. A barium cream of variable thickness to meet different indications, made with gum tragacanth and flavored with saccharin and vanillin, is given. The progress of a small portion (3 to 4 oz.) is observed as it passes down the oesophagus, the patient being in the upright left oblique position. Its entry into the stomach is noted and a minute and systematic examination of the entire wall of the stomach and duodenum is made with the aid of careful palpation and turning of the patient to bring the different parts into view. More of the meal is given if desirable. In a few cases an examination in the horizontal position is made. Films are made to serve as records or as demonstrations to the surgeon. Repeated examinations are rarely indicated as obstructions to the onward passage of the meal are usually observed at the first examination. At all times the patient and operator are properly protected and the examination is conducted as expeditiously as possible. ADOLPH HARTUNG, M.D.

Duane, W.: Measurement of Dosage by Means of Ionization Chambers. *Am. J. Roentgenol.*, 1923, x, 399.

The fact that different roentgen-ray plants produce roentgen rays of different intensities and effective wave-lengths, even though they may be running at the same voltage as estimated by a sphere-gap, and with the same current through the tube, indicates that something connected with the roentgen-ray beam itself must be used for the accurate estimation of dosage. Without doubt, ionization chambers provide the most reliable methods of

measurement at the present time. Ionization chambers are by no means perfect, however, and great care must be exercised in employing them.

In this article the author describes the principles involved in ionization chambers and enumerates various errors which are dependent upon their construction. In order to test the suitability of a standard ionization chamber it is necessary to make sure, first, that the ionization current is saturated, and, second, that it includes practically all of the secondary radiation coming from the molecules of gas struck by the primary beam.

The large standard ionization chambers are not suitable for measurements of the intensity during a treatment. One of the smaller ionization chambers is always used. The intensity of the rays is measured at the surface where they enter the patient's body and also where they emerge. This gives an estimate of the secondary radiation coming from the patient's body, but the estimate is too low. Estimates may be made by means of water phantoms, the small ionization chamber being placed in the water itself. This estimate is always too high. The exact dose received by the patient's skin lies between the two. The estimates of the secondary radiation from different patients made from measurements taken during the treatments have been quite variable. The secondary radiation appears to depend not only upon the size of the portal of entry but also upon the size of the patient and the shape, content, etc. of the portion of the body radiated. In estimating erythema doses all of these factors must be taken into consideration. The safest method appears to be to make the measurements while the patient is being treated.

A great many important investigations have been carried on in connection with the question as to whether the biological effects of the roentgen rays are proportional to ionization currents when rays of different wave-lengths are used. The term "biological dose" is used. In particular cases biological doses are definite quantities. Before the term "biological dose" may be employed in general, however, it will be necessary to show by experiments that a large number of different biological effects are proportional to each other when roentgen rays of different wave-lengths produce the effects.

ADOLPH HARTUNG, M.D.

Kemp, C.: The Effect of the Roentgen Rays on Subacute Inflammations (Einiges ueber die Wirkung von Roentgenstrahlen auf subakute Entzuendungen). *Deutsche Ztschr. f. Chir.*, 1922, clxxvi, 272.

Since 1916, in the Municipal Hospital in Worms, severe suppurations not affected by the usual clinical

methods have been treated with very light doses of roentgen rays. In some cases the raying acts surprisingly well, while in others it fails without apparent reason. The author reports several favorably influenced cases of peritoneal suppuration and also several cases of gunshot wounds which were not benefited. On the whole, however, the results may be regarded as satisfactory. In furunculosis in the axilla the results have been good and there have been no recurrences. Ulcers of the leg which had been treated without result for some time by the usual clinical methods have become clean within forty-eight hours after raying. Good results have been obtained also in pneumonia; two cases are cited.

The doses used for all types of inflammation, even pneumonia, are small. In cases of pus in the abdomen, furunculosis, and pneumonia, a single large field is given 20 to 30 per cent of an erythema skin dose for two or three minutes. In the author's opinion this dose can be decreased. He emphasizes that in such cases the raying of a single large field is quite sufficient. The raying of one field in the front and one in the back in pneumonia he considers wrong because of the danger of an unfavorable effect on the general condition. COLLEY (Z).

Lange, S.: The New High-Voltage X-Ray Therapy.
Cincinnati J. M., 1923, iv, 123.

The newer roentgen therapy is a further development of the accepted roentgen-ray technique based upon the well-established and well-known laws of tissue absorption and filtration. The highest possible voltages are used to produce a ray of short wave length and great penetrating power, and a dense filter (of copper) is used to cut out a large percentage of the weaker and less penetrating rays. In this way a greater dose of roentgen rays can be introduced into the deeper parts of the body without injuring the skin and superficial tissues.

The ratio (or percentage) of the number of rays reaching the deeper tissues as compared with the number of rays falling upon the skin is termed the "depth dose." To be accurate, this percentage must be further modified by the dispersion quotient based upon the physical law that the intensity of light varies inversely with the square of the distance. It may be further modified by a factor which takes into account the secondary rays which may be generated in the tissues by the primary beam, the efficiency of the primary beam being thus increased. The determination of the relation between the number of rays falling upon the skin and the number reaching the deeper tissues is an essential part of the newer technique.

The measurement of the amount of radio-activity at the surface and at various depths is a prime requisite for successful radiotherapy. This may be accomplished by the use of ionization chambers which give sufficiently accurate readings to constitute a practical guide to dosage. Enough radiation must reach the cells of the tissue treated to produce the desired results.

The requirements for successful roentgen therapy are a thorough understanding of the fundamentals of radiology and the development of an individual technique embodying a proper combination and balance of voltage, filtration, and time.

The high-voltage technique is especially adapted to deep cancer. Superficial malignancy and benign conditions (both superficial and deep) frequently yield more quickly to the older technique using lower voltages and less filtration.

To illustrate the clinical achievements of the newer technique using copper filtration and prolonged exposures the author reports briefly certain cases in which very satisfactory, and in some instances almost miraculous, results were obtained. A number of inoperable breast cancers were arrested or clinically cured. In many cases nodules recurring after breast amputation have disappeared rapidly under proper roentgen-ray treatment, and lesions which primarily appeared to be inoperable have been rendered operable.

A symptomatic cure was obtained in several cases of sarcoma of an apparently malignant type, three cases of malignancy of the inguinal glands, and several cases of malignancy elsewhere, while in five cases of abdominal malignancy the results were very gratifying. ADOLPH HARTUNG, M.D.

RADIUM

Roth, S. C., and Morton, J. J.: The Effect of Radium and X-Rays on Enzyme Action. *Am. J. Roentgenol.*, 1923, x, 407.

Because of the conflicting evidence relative to the effect of radiation on enzyme action, the authors made an attempt to obtain additional information on the subject. Only the immediate effects were observed. The study of the late effects, though desirable, is complicated by the possibility of infection of the solutions.

The edestin, pea globulin, and Mett methods were used. Solutions of pepsin with hydrochloric acid exposed to radium and the roentgen-ray for variable periods showed no differences in peptic power from control solutions. In human gastric juice similarly exposed to roentgen irradiations the findings were practically the same; such slight variations as were noted fell within the limits of experimental error.

ADOLPH HARTUNG, M.D.

MISCELLANEOUS

Picard, H.: Diathermy in Surgery (Diathermiebehandlung in der Chirurgie). *Deutsche med. Wchnschr.*, 1923, xlix, 13.

The author calls attention to the numerous indications for diathermy in surgical conditions. These include the treatment of malignant tumors and the removal of hæmangiomata, telangiectases, and nævi. During the war, this method was successfully applied to the treatment of fractures, joint effusions, tendon injuries, and myalgia. Kowar-

schik and Tobias found it of great value in arthritis deformans. In the author's opinion it is not indicated in diseases of the biliary tract, appendicitis, or duodenal ulcer. He finds it of greatest value in the treatment of angiospastic and arteriosclerotic gangrene, and Raynaud's disease. In two of three cases of angiospastic and Raynaud's gangrene in which amputation seemed indicated, the gangrene was overcome by longitudinal diathermy.

In other cases diathermy greatly alleviated pain, particularly when it was combined with roentgen irradiation in the treatment of carcinoma.

The author has employed diathermy successfully also in the treatment of cicatricial stricture of the œsophagus. He introduced a metal bougie into the œsophagus to serve as one electrode, and applied the other electrode to the patient's back. Strips of tinfoil were placed around the chest so that the lines of the current would enclose the œsophagus, thus giving uniform warmth. In one case in which it was necessary to feed the child through a gastric fistula, the patient was able to take pulpy food by mouth after eight days of treatment with diathermy, and at the end of twelve days was able to take any kind of food.

HAUMANN (Z).

Fisher, E. B.: Experiments on the Bactericidal Action of the Violet Ray. *California State J. M.*, 1923, xxi, 218.

The results of experiments testing the action of the violet ray on bacterial cultures and clinically seem to indicate that the benefit derived from the ray is due, not to its ability to destroy bacteria, but to its power to increase the number of leucocytes and to cause an intense hyperæmia.

SAMUEL KAHN, M.D.

Albela, D.: The Effect of the Ultraviolet Rays on Phagocytosis (Ueber die Einwirkung ultravioletter Strahlen auf die Phagocytose). *Deutsche med. Wchnschr.*, 1922, xlviii, 1347.

To determine the effect of the ultraviolet ray on phagocytosis Albela conducted experiments on guinea pigs and rabbits. After depilation of their ears, the animals were exposed to the quartz lamp, with their eyes covered, four times weekly for thirty minutes during the period from January 7 to January 29, 1922. Albela found that the variations in the number of phagocytes during and after the irradiation were almost the same as those in normal unirradiated animals.

NAEGELI (Z).

MISCELLANEOUS

CLINICAL ENTITIES—GENERAL PHYSIOLOGICAL CONDITIONS

McIver, M. A., and Haggart, W. W.: **Traumatic Shock: Some Experimental Work on Crossed Circulation.** *Surg., Gynec. & Obst.*, 1923, xxxvi, 542.

The experimental work reported in this article was based on the theory that toxic substances taken up by the circulation from a traumatized area might be instrumental in the production of shock. This has been one of the theories which has had many adherents during the past few years. In crossing the circulation of two animals the authors used a technique different from that usually employed. Cats were used for the experimental work.

No attempt was made to cross the entire circulation. Following traumatization of the lower limbs, an anastomosis was made between the aortæ and venæ cavæ above the bifurcations. After the anastomosis had been effected the traumatized extremities were amputated. The anastomoses were made by means of paraffined glass cannulæ. A mercury manometer was inserted in the carotid artery, and the blood pressure recorded during the entire experiment.

The animal was considered to be in shock when the systolic pressure was persistently below 70 mm. Hg. The character and rate of the pulse and respiration, the color of the mucous membranes, and the general condition of the animal were noted. Manipulation of the traumatized limb and even gentle massage lowered the blood pressure. Severe trauma was always followed by a sudden lowering of the blood pressure. In a few cases there were no evidences of shock, the blood pressure remaining well above the shock level after an hour and a half.

Seventeen complete experiments were made. Of twelve animals in which the muscles of the thigh were completely traumatized, nine developed the typical picture of shock within thirty minutes. In three cases there were no evidences of shock. Five animals were used as controls, the same crossed circulation being made but the amputated limbs not being traumatized.

The authors conclude that these experiments justify the opinion that some substance capable of producing shock was taken up from the traumatized area by the circulation. HAROLD M. CAMP, M.D.

Robertson, B., and Boyd, G.: **The Toxæmia of Severe Superficial Burns in Children.** *Am. J. Dis. Child.*, 1923, xxv, 163.

In cases of superficial burns the problems encountered are primary shock and toxæmia.

If the primary shock is so severe that death may result within a few hours of the injury, treatment

directed toward its relief is apt to be disappointing. In many cases primary shock is mild or absent.

Following a period of general good condition lasting from twenty-four to forty-eight hours, the temperature may rise and toxæmia develop; the patient then becomes drowsy, the pulse more rapid, the circulation depressed. In cases in which recovery results the temperature and toxæmia subside about the fifth day and the treatment becomes local.

In the more severe cases the temperature may rise to 106 degrees F. and the toxæmia may be increased; vomiting may be persistent, the pulse soft, the color dusky or livid, and muscular twitchings and convulsions may develop. In one of the convulsions death may occur. The severity depends upon the area, depth, and location of the burn and the age of the patient.

In seven cases reviewed the urine contained little albumin, the leucocytes were increased, and the non-protein nitrogen varied from 42.9 to 99. It is probable that the increase in non-protein nitrogen is due to increased tissue destruction rather than to defective kidney elimination.

To relieve the toxæmia, local treatment such as the removal of large areas of tissue was found impractical as the areas involved were too large or involved the face, or the patient was admitted in a toxic condition. The effect of large doses of sodium bicarbonate in combating acidosis seemed to be favorable.

To remove the toxin in the blood the operation of exsanguination-transfusion was devised, the object being to withdraw a much larger amount of blood than could be done by venesection and to replace it with fresh adult blood. The amount of blood withdrawn ranged from 200 c.cm. in an infant to 500 c.cm. in a child of 3 years.

The results were considered encouraging. Of ten patients with convulsions treated by exsanguination-transfusion, seven recovered whereas previously no patient had recovered after a convulsion had been precipitated by a burn toxæmia.

Experiments showed that a circulating toxic material is produced in increasing amounts for from twenty-four to thirty-six hours as a result of the burning of living tissues. Chemically, the toxin consists of primary and secondary proteoses. It is made up of necrotoxic and neurotoxic proteins, the former being thermostable and diffusable and the latter thermolabile and colloidal.

No evidence of antibody production was found although this was reported by Katzeroff, who based his conclusions on the beneficial effects of convalescent serum from burned patients in fourteen cases of toxic shock. A. W. BRYAN, M.D.

Levitsky, V.: A Preliminary Report on My Treatment of Cancer (Vorläufige Mitteilung ueber meine Krebsbehandlung). *Serb. Arch. f. d. ges. Med.*, 1923, xxv, 14.

The author bases the treatment of malignant tumors with amniotic fluid on the following facts:

There is an analogy between embryonic cells and those of malignant tumors. The differentiation between embryonic cells is constant and always the same. Disturbances during embryonic life never cause abnormal proliferation of the embryonic cells and pregnant women are seldom attacked by malignant tumors.

These facts the author attributes to the protective power of the amniotic fluid. He assumes that the amniotic fluid contains ferments and hormones with a specific action.

The injection of carbolic amniotic fluid into dogs caused neither a general nor a local reaction except leucocytosis and diuresis. It is still too early to draw conclusions regarding its effect in the clinical cases reported—one case of carcinoma of the cæcum and two cases of carcinoma of the breast. It is remarkable, however, that in one of the two cases of carcinoma of the breast the cancer was reduced to half its original size after eight weeks of treatment with the injection of 94½ c.cm. of amniotic fluid into the tumor and the carcinomatous lymph glands. An increase of temperature, lassitude, and headache are noted during the treatment and after the injection of large amounts of the fluid.

Since only persons affected with cancer react to the injection, the assumption is justified that amniotic fluid has a specific effect on carcinoma. The subcutaneous injections are given every second or third day, and the amounts of the fluid are increased from 1 to 7 c.cm.

KOLIN (Z).

SURGICAL PATHOLOGY AND DIAGNOSIS

Churchman, J. W.: The Mechanism of Bacteriostasis. *J. Exper. Med.*, 1923, xxxvii, 543.

Gentian violet exhibits the same type of selective activity in Gram-positive and Gram-negative organisms whether it is added to the media on which the bacteria are planted unstained—extrinsic bacteriostasis—or the organisms are stained with it before they are planted on plain agar—intrinsic bacteriostasis. In both instances the Gram-positives are inhibited and the Gram-negatives are unaffected.

In Gram-positive spore-bearing aerobes and the more common Gram-negative bacteria, acid fuchsin, related sulphonic substances, and the flavines exhibit one type of selective activity when they are added to the media, and the opposite type when they are added directly to the bacteria. In the former case, the Gram-positive spore-bearers are inhibited and the Gram-negatives are unaffected, while in the latter, the Gram-negatives are inhibited and the Gram-positive spore-bearers are unaffected.

Selective bacteriostasis is not necessarily conditioned by selective penetrability. Stained organ-

isms may grow, and dyes which do not stain well may inhibit reproduction.

There is evidence that the phenomena of bacteriostasis may be due to changes effected by the dye at the surface of the micro-organisms.

SAMUEL KAHN, M.D.

Seyfarth, C.: Trephination of the Sternum, a Simple Method of Removing Bone Marrow for Diagnosis During Life (Die Sternum-trepanation, eine einfache Methode zur diagnostischen Entnahme von Knochenmark bei Lebenden). *Deutsche med. Wchnschr.*, 1923, xlix, 180.

In diseases of the hæmatopoietic system—latent malaria and kala-azar—puncture of the spleen or liver has been done to establish the diagnosis. However, as rupture or hæmorrhage of the spleen sometimes followed diagnostic puncture, resort to other methods became necessary.

During his practice at a malaria hospital from 1916 to 1918, Seyfarth found in autopsies on the bodies of persons who died from malaria, that the best material for study was obtained from the short flat bones. As proof of this, he mentions the fact that in adults the marrow of the long bones has changed into fat marrow, while the flat bones, particularly the vertebræ, ribs, and sternum, contain living cellular marrow. He therefore removed it from the sternum and ribs. In the material so obtained he found the disease-causing bacteria. Some of them were free while others were contained in the reticular endothelia, capillary endothelia, and other cells of the bone marrow.

Under local anæsthesia a longitudinal incision 5 cm. long was made over the sternum at the level of the third and fourth ribs, a small trephine was then used, and the marrow was removed with a sharp platinum spoon. The wound was closed with skin-clamps and an adhesive plaster dressing.

Trephination of the ribs to obtain material for examination should be done only exceptionally as it interferes with the recumbent position. When it is done, the area chosen is in the scapular or posterior axillary line of the seventh or eighth rib.

PLENZ (Z).

MEDICAL JURISPRUDENCE

Care Required of a Hospital in the Treatment of the Eye. *Derrick vs. Portland Eye, Ear, Nose and Throat Hospital*, 209 Pac. Rep., p. 344.

This was an action to recover \$10,000 for alleged negligence resulting in the loss of the sight of the plaintiff's right eye. On the trial the plaintiff recovered a judgment for \$5,000. From this judgment the hospital took an appeal, alleging several errors.

The record shows that the defendant hospital, by its nurse, applied to the plaintiff's eye a drug called "eserine" instead of the drug known as "atropine" which was prescribed by the physician. There was expert testimony to the effect that eserine, when applied to the eye, is a harmless drug if the eye is in

proper condition; that its effect is to contract the pupil while atropine expands the pupil.

A skilled specialist had previously performed an operation upon the eye in the treatment of a traumatic cataract resulting from injuries sustained a few weeks prior thereto by reason of the penetration of the eyeball by a wire. The operation was called "needling" the eye, its purpose being to absorb the cataract. Following the operation the specialist prescribed an application of atropine every few hours, and instructed the nurses in the hospital as to how it should be applied. The Supreme Court of Oregon held that there was sufficient evidence in this case for the jury to pass upon. The judgment against the hospital was approved. WILLIAM E. MOONEY.

Malpractice in Reducing Fractures. *Berkholz vs. Benepe*, 190 N. W. Rep., p. 800.

In this case the plaintiff recovered a verdict of \$3,500 against a physician and surgeon for malpractice. This was reduced to \$1,800 by the trial judge to whom the physician appealed. The plaintiff fractured both bones of the right leg a few inches above the ankle. The defendant placed a cast on the leg and attended the patient for about two

months. When the cast was removed there appeared to be a lump at the point of fracture, but the physician assured the patient it would disappear within two years. Another doctor then consulted advised an immediate operation. The bones were broken and re-set, and about six months thereafter the leg was serviceable.

The fracture of the tibia was oblique. The alleged negligence consisted of failure to make an X-ray examination in the diagnosis; failure to use a fracture box; the use of casts which did not extend above the knee; and failure to employ extension weights.

The expert who testified for the plaintiff was a graduate of an osteopathic school of medicine and had a license as an osteopath. He was also a graduate of an allopathic school and had practiced as an allopath for six months after graduation. He testified that both as to teaching and practice the diagnosis and treatment of bone fractures were identical in the two schools.

In reviewing the case the Supreme Court of Minnesota held that there could be no question that the verdict was amply supported by the evidence. It therefore affirmed the judgment.

WILLIAM E. MOONEY.

BIBLIOGRAPHY *of* CURRENT LITERATURE

NOTE.—THE BOLD FACE FIGURES IN BRACKETS AT THE RIGHT OF A REFERENCE INDICATE THE PAGE OF THIS ISSUE ON WHICH AN ABSTRACT OF THE ARTICLE REFERRED TO MAY BE FOUND.

SURGERY OF THE HEAD AND NECK

Head

Traumatism of the bones of the skull. J. V. APARICIO. Clin. y lab., 1923, i, 455.

Cicatrix formation at the bregma and its possible development from examinations of Guanche skulls and animal experiments. P. BOCKENHEIMER. Ztschr. f. Ethnol., 1922, liv, 130.

A case of necrosis of the left temporal bone involving the facial nerve and labyrinth following triple infection of scarlet fever, measles, and diphtheria in a child aged 7. J. F. O'MALLEY. Proc. Roy. Soc. Med., Lond., 1923, xvi, Sect. Otol., 29.

Temporomandibular ankylosis; recovery after intervention and dilatation. P. HALLOPEAU and A. DARCISSAC. Bull. et mém. Soc. de chir. de Par., 1923, xlix, 669.

A case of ankylosis of the jaw. G. E. WAUGH and A. T. PITTS. Proc. Roy. Soc. Med., Lond., 1923, xvi, Sect. Dis. Child., 44.

Six cases of fracture of the condyloid region of the mandible. J. BERCHE. Rev. de chir., 1923, xlii, 200.

Ununited fracture of the lower jaw with or without loss of bone. F. H. ALBEE. Surg. Clin. N. Am., 1923, iii, 301.

The plastic repair of skin defects of the jaw and chin. A. EISELSBERG and H. PICHLER. Arch. f. klin. chir., 1922, cxxii, 337. [213]

The histopathogenesis of a cystic lymphangioma of the cheek in direct relation with an aberrant salivary lobule. O. FINZI. Policlin., Rome, 1923, xxx, sez. chir., 191.

Facial autoplasty with long, pedicled, tubular flaps. P. MOURE. J. de chir., 1923, xxi, 414.

Eye

Microphthalmia with a vertical slit-like pupil, an opacity of the cornea, and the remains of a pupillary membrane. W. D. LAWRIE. Brit. J. Ophth., 1923, vii, 240.

Optic atrophy. R. E. WRIGHT. Brit. M. J., 1923, i, 806.

Common problems in the eye disease of infancy and childhood. S. R. GIFFORD. Nebraska State M. J., 1923, viii, 165.

Follicular eye affections in children. J. W. DUNN. Illinois M. J., 1923, xliii, 384.

The relationship of the eye to general diseases. G. B. DUDLEY, JR. Virginia M. Month., 1923, li, 110.

Ocular inflammations the result of distant focal infection. J. DUNN. Am. J. Ophth., 1923, 38.vi, 464.

The significance of the tuberculin reaction and other problems in ocular tuberculosis. W. H. LUEDDE. Am. J. Ophth., 1923, vi, 161. [213]

The routine Wassermann test in ophthalmology. H. B. GRATIOT. J. Iowa State M. Soc., 1923, xiii, 186.

Ophthalmia neonatorum. L. LEHRFELD. Am. J. Ophth., 1923, vi, 380.

The symptoms of eye diseases and their relation to general medicine. J. R. ECHELBERGER. Ohio State M. J., 1923, xix, 331.

The epidemiology of surface disease of the eyes. N. B. HARMAN. Proc. Roy. Soc. Med., Lond., 1923, xvi, Sect. Epidem. & State Med., 49.

The eye in beri-beri. A. S. FERNANDO. Am. J. Ophth., 1923, vi, 385.

Visual disturbances secondary to encephalitis. C. VINCENT and E. BERNARD. Bull. et mém. Soc. méd. d. hôp. de Par., 1923, 38.xxxix, 222.

Clinical aspects of eye symptoms in encephalitis lethargica. W. G. CAMERON. Am. J. Ophth., 1923, vi, 389.

The causes of bitemporal contraction of the visual field. E. HILL. Am. J. Ophth., 1923, vi, 257. [214]

Hiccough followed by loss of vision. J. H. GROSS. Am. J. Ophth., 1923, vi, 402.

Amaurosis and amblyopia produced by quinine. M. M. AMAT. Siglo méd., 1923, lxx, 439. [214]

An experimental study of the pathogenesis of quinine amblyopia, with special reference to ethylhydrocuprein hydrochloride. A. E. FORSTER. Am. J. Ophth., 1923, vi, 376.

A case of amaurotic family idiocy. A. H. LEVY. Proc. Roy. Soc. Med., Lond., 1923, xvi, Sect. Ophth., 17.

The recognition of hemianopsia in general practice and its diagnostic importance. R. T. WILLIAMSON. Practitioner, 1923, cx, 276. [215]

Functional chromo-periodic hemianopsia. J. N. RHODES. Am. J. Ophth., 1923, vi, 392.

Fugacious homonymous hemianopsia. J. M. BANISTER. Am. J. Ophth., 1923, vi, 396.

The method of the "coincidences" in the examination and interpretation of binocular diplopias. M. MÁRQUEZ. Med. Ibero, 1923, vii, 433.

The muscle indicator for plotting out the field of diplopia. E. B. MILLER. J. Am. M. Ass., 1923, lxxx, 1453.

System and thoroughness of eye examinations and treatment. F. S. CUTHBERT. J. Indiana State. M. Ass., 1923, xvi, 169.

The Middlemore lecture, 1922, on refraction. T. H. BUTLER. Brit. M. J., 1923, i, 843.

The mechanism and use of a variable five-minute test letter. J. M. THORINGTON. Am. J. Ophth., 1923, vi, 361.

The new reduced eye adapted to accommodation. V. C. VERBITZKY. Brit. J. Ophth., 1923, vii, 237.

Associated movements of the upper lid and jaw. C. J. ADAMS. Am. J. Ophth., 1923, vi, 401.

Trachoma. G. W. PAYNE. Kentucky M. J., 1923, xxi, 238.

The social defense against trachoma. A. ROSICA. Policlin., Rome, 1923, xxx, sez. prat., 595.

The combined intranasal and external operation on the lachrymal sac: Mosher-Toti. H. P. MOSHER. Ann. Otol., Rhinol. & Laryngol., 1923, xxxii, 1. [215]

Dacryorhinocystotomy; combined methods. W. E. SAUER. *Ann. Otol., Rhinol. & Laryngol.*, 1923, xxxii, 25. [215]

Fundamental considerations in the correction of squint. A. WHITMIRE. *Arch. Ophthalm.*, 1923, lii, 242.

A case of pemphigus of the conjunctiva. H. W. WOOTTON. *Arch. Ophthalm.*, 1923, lii, 270.

Phlyctenular kerato-conjunctivitis. S. TRATTNER. *Virginia M. Month.*, 1923, li, 117.

The treatment of conical cornea. C. KILICK. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Ophthalm., 24.

A review of keratoplastic surgery and some experiments in keratoplasty. A. E. FORSTER. *Am. J. Ophthalm.*, 1923, vi, 366.

The etiology of uveitis. B. CHANCE. *Atlantic M. J.*, 1923, xxvi, 528. [215]

A case of a hole in the hyaloid. R. L. REA. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Ophthalm., 20.

A modified suction cataract extractor. R. F. MOORE. *Brit. J. Ophthalm.*, 1923, vii, 235.

Investigations on the action of the cupping glass of Barraquer during the total extraction of cataract. L. KOEPE. *Siglo méd.*, 1923, lxx, 434, 436, 461, 509.

Consecutive cases of cataract extraction by Barraquer's method. R. A. GREEVES. *Lancet*, 1923, cciv, 898.

Consecutive cases of cataract extraction by Barraquer's method. R. F. MOORE. *Lancet*, 1923, cciv, 898.

Practical points on cataract extraction. J. B. CORSER. *Atlantic M. J.*, 1923, xxvi, 536.

Some unusual results of operations for cataract. T. H. BUTLER. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Ophthalm., 21. [216]

A rebounding intra-ocular foreign body. W. S. REESE. *Am. J. Ophthalm.*, 1923, vi, 401.

Two cases of early familial maculo-cerebral degeneration. M. L. HINE. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Ophthalm., 18.

Acute glaucoma following Heine's cyclodialysis. Y. YOSHIDA. *Am. J. Ophthalm.*, 1923, vi, 356.

Aphakia with glaucoma. W. E. LAMBERT. *Arch. Ophthalm.*, 1923, lii, 268.

The iridotaxis operation for glaucoma. M. GOLDENBURG. *Am. J. Ophthalm.*, 1923, vi, 353.

The etiology of angoled streaks in the fundus oculi. E. T. COLLINS. *Lancet*, 1923, cciv, 898.

A case of exudative retinitis—Coate's disease. R. C. DODD. *Arch. Ophthalm.*, 1923, lii, 269.

Diffuse chorioretinitis of both eyes of malarial origin. M. M. AMAT. *Siglo méd.*, 1923, lxx, 460.

Night blindness: retinitis pigmentosa sine pigmento. J. A. VALENTINE. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Ophthalm., 17.

Unilateral chorio-retinal atrophy. B. W. KEY. *Arch. Ophthalm.*, 1923, lii, 276.

Discussion on the significance of the vascular and other changes in the retina in arteriosclerosis and renal disease. G. N. PITT, H. B. SHAW, R. F. MOORE, P. BARDSLEY, P. ADAMS, and others. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Med. & Ophthalm., 1.

Thrombosis of the central retinal vein. H. WOOD. *Am. J. Ophthalm.*, 1923, vi, 400.

An etiological study of a series of optic neuropathies. A. C. WOOD and J. R. DUNN. *J. Am. M. Ass.*, 1923, lxxx, 1113. [216]

Two cases of tumor of the optic nerve. H. NEAME. *Brit. J. Ophthalm.*, 1923, vii, 209.

Primary gliomata of the chiasm and optic nerves in their intracranial portion. P. MARTIN and H. CUSHING. *Arch. Ophthalm.*, 1923, lii, 209.

Two cases of retro-ocular neuritis, one due to sphenoidal, the other to ethmoidal (posterior cells) sinusitis. J. D. CUMMINS and L. J. CURTIN. *Med. Press*, 1923, n.s.civ, 437.

Some etiological factors of retrobulbar neuritis. C. T. WOLFE. *Kentucky M. J.*, 1923, xxi, 229.

A case of orbital abscess producing a clinical picture of separation of the retina. R. C. CHENEY. *Arch. Ophthalm.*, 1923, lii, 252.

A cavernous angioma of the orbit. G. MANCILLA. *Rev. méd. de Sevilla*, 1923, xlii, 26.

Endothelioma of the orbit. F. A. WILLIAMSON-NOBLE. *Brit. J. Ophthalm.*, 1923, vii, 222.

Ear

Recording of functional hearing tests. S. JESBERG. *Laryngoscope*, 1923, xxxiii, 379.

The practical diagnostic value of tests of the vestibular mechanism. F. L. DENNIS. *Ann. Otol., Rhinol. & Laryngol.*, 1923, xxxii, 160.

Sensibility of pathological ears to small differences of loudness and pitch, including a report on seven cases of diplacusis. V. A. KNUDSEN and G. E. SHAMBAUGH. *Laryngoscope*, 1923, xxxiii, 353. [217]

A new magnifying glass for otoscopy. A. ZEBROWSKI. *Ann. Otol., Rhinol. & Laryngol.*, 1923, xxxii, 453.

Total deafness due to trauma, with normal static labyrinthine findings: report of two cases. S. J. KOPETZKY and A. A. SCHWARTZ. *Laryngoscope*, 1923, xxxiii, 340.

Laceration of the meatus and tympanic membrane produced by a celluloid knitting needle. H. J. BANKS-DAVIS. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Otol., 30.

Otosclerosis and osteitis deformans: a pathological and clinical comparison. G. J. JENKINS. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Otol., 21.

The roentgen therapy of tinnitus aurium. L. C. KINNEY. *Am. J. Roentgenol.*, 1923, x, 378.

Acute otitis media in children. J. B. GREENE. *South. M. J.*, 1923, xvi, 395.

Acute otitis media in children. H. L. GREGORY. *Am. J. Clin. Med.*, 1923, xxx, 331.

Myringotomy from the standpoint of the pathology of early otitis media. A. M. ALDEN. *J. Missouri State M. Ass.*, 1923, xx, 169.

The treatment of otitis media with tuberculin. G. THOMSEN VON COLDITZ. *Ann. Otol., Rhinol. & Laryngol.*, 1923, xxxii, 149.

The chronic running ear. O. M. ROTT. *Northwest Med.*, 1923, xxii, 170.

The treatment of chronic suppurative otitis media with zinc ions. BARAJAS and DE VITCHES. *Siglo méd.*, 1923, lxx, 432.

The pathology, diagnosis, and treatment of acute mastoiditis. A. R. MCKINNEY. *J. Michigan State M. Soc.*, 1923, xxii, 238.

The value of roentgen study of mastoid disease in children under 5 years of age. W. A. EVANS. *Am. J. Roentgenol.*, 1923, x, 382.

The report of a case of cerebral abscess following acute mastoiditis. C. W. POND. *Northwest Med.*, 1923, xxii, 172.

The determination of the line of the descending portion of the facial canal in doing the mastoid operation. F. BRIDGETT. *Laryngoscope*, 1923, xxxiii, 329. [219]

A parotid fistula in the scar of an old mastoid wound. H. J. BANKS-DAVIS. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Otol., 30.

Primary thrombosis of the mastoid emissary vein with secondary involvement of the lateral sinus. J. FRIEDMAN and S. J. GREENFIELD. *Laryngoscope*, 1923, xxxiii, 347. [218]

Nose

The correction of saddle nose. F. CHOMICKI. *Polska gaz. lek.*, 1922, i, 950.

Plastics for wry nose. E. EITNER. *Med. Klin.*, 1923, xix, 238.

Some pathological nose and throat conditions of interest to both dentists and rhinopharyngologists. O. A. LOTHROP. *Boston M. & S. J.*, 1923, clxxxviii, 696.

Rhinopharyngitides: their rôle in contagion and the development of several infectious diseases. J. CARLES. *J. de méd. de Bordeaux*, 1923, xcv, 111.

A case of telangiectasis of the mucous membranes of the nose and lips associated with long-standing and severe epistaxis. J. W. MILLER. *Laryngoscope*, 1923, xxxiii, 367.

Paranasal sinusitis. E. W. GARDNER. *Am. J. Clin. Med.*, 1923, xxx, 323.

Nasal accessory sinus disease and systemic infection. W. S. SYME. *Practitioner*, 1923, cx, 353. [218]

The treatment of acute sinusitis. G. B. POTTER. *Nebraska State M. J.*, 1923, viii, 168.

A case of recurrent suppurative frontal sinus disease. E. WATSON-WILLIAMS. *Lancet*, 1923, cciv, 1056.

The radical frontal sinus operation, with report of cases. F. O. LEWIS. *Ann. Otol., Rhinol. & Laryngol.*, 1923, xxxii, 305. [218]

A trocar cannula for the maxillary sinus. R. BECCO. *Semana méd.*, 1923, xxx, 876.

An upper canine tooth in the antrum of Highmore. J. H. PEGG. *Brit. M. J.*, 1923, i, 897.

Latent maxillary sinusitis. J. W. WHITE. *Virginia M. Month.*, 1923, li, 90.

Roentgen therapy of the antrum and frontal sinus. J. D. OSMOND. *Am. J. Roentgenol.*, 1923, x, 374.

The radical maxillary sinus operation under local anæsthesia. L. A. SCHIFFER. *J.-Lancet*, 1923, xliii, 243.

Halle's intranasal sinus operations; ozæna and lachrymal sac operations. W. SPIELBERG. *Med. Times*, 1923, li, 114.

The end-results of radical operations on the accessory sinuses. R. H. SKILLERN. *Ann. Otol., Rhinol. & Laryngol.*, 1923, xxxii, 139. [218]

The causes of failure in surgery of the nasal accessory sinuses. W. MITHOEFER. *Laryngoscope*, 1923, xxxiii, 371.

Nasal or spenopalatine neurosis. M. B. BOEBINGER. *Texas State J. M.*, 1923, xix, 35.

Nasal reflex. R. F. RIDPATH. *Ann. Otol., Rhinol. & Laryngol.*, 1923, xxxii, 464.

Why adenoids often permanently injure features, mind, and health. E. S. COLVIN. *J. Med. Ass. Georgia*, 1923, xii, 193.

Fibroma of the nasopharynx. S. G. DABNEY. *Kentucky M. J.*, 1923, xxi, 228.

Mouth

Radium treatment of carcinoma of the lip. L. TAUSSIG. *Med. Clin. N. Am.*, 1923, vi, 1579.

The surgical operative treatment of cleft palate. G. V. BROWN. *Chicago M. Rec.*, 1923, xlv, 659.

Mercurial stomatitis. J. M. FOREMAN. *J. Roy. Army Med. Corps, Lond.*, 1923, xl, 364.

Ulcerative stomatitis and its treatment by the intravenous injection of arsenic. E. A. MORGAN. *Am. J. Dis. Child.*, 1923, xxv, 354.

The surgery of carcinomata of the mucous lining of the mouth. L. HEDRICH. *Beitr. z. klin. Chir.*, 1923, cxviii, 310.

A discussion on dental sepsis as an etiological factor in diseases of other organs. W. WILLCOX, K. GOADBY, W. HUNTER, W. HERN, and others. *Proc. Roy. Soc. Med.*, *Lond.*, 1923, xvi, Sect. Odont., 7. [219]

The technique of oral radiography. C. O. SIMPSON. *Internat. J. Orthodont., Oral Surg., & Radiography*, 1923, ix, 390.

Congenital absence of all teeth except two. A. T. PITTS. *Proc. Roy. Soc. Med., Lond.*, 1923, xvi, Sect. Dis. Child., 45.

Congenital absence of teeth in three members of a family. A. T. PITTS. *Proc. Roy. Soc. Med., Lond.*, 1923, xvi, Sect. Dis. Child., 44.

The pulpless tooth: its relation to dental practice. A. WALKER. *Dental Cosmos*, 1923, lxxv, 479.

A case of Hutchinsonian teeth. A. T. PITTS. *Proc. Roy. Soc. Med., Lond.*, 1923, xvi, Sect. Dis. Child., 45.

A note on the operative treatment of malignant disease, with special reference to the tongue. H. J. PATERSON. *Lancet*, 1923, cciv, 951. [219]

Cancer of the tongue, lips, and cheek. V. P. BLAIR and M. J. MOSKOWITZ. *Internat. J. Orthodont., Oral Surg., & Radiography*, 1923, ix, 302, 384.

Ranula. V. P. BLAIR. *Ann. Surg.*, 1923, lxxvii, 681. [219]

A case of subglottic oedema due to acute lymphatic leukæmia. L. HUBERT. *Laryngoscope*, 1923, xxxiii, 389.

Submaxillary intraglandular lithiasis. E. B. ACEVEDO. *An. Fac. de med., Univ. de Montevideo*, 1922, vii, 634.

Throat

Phases of chronic pharyngeal infection. W. S. TOMLIN. *J. Indiana State M. Ass.*, 1923, xvi, 161.

The tonsils in childhood. L. T. ROYSTER. *South. M. J.*, 1923, xvi, 351.

Sensitive fingers and the tonsil. H. HAYS. *Med. Times*, 1923, li, 126.

The bacteriology of irradiated tonsils. H. J. ULLMANN and F. R. NUZUM. *Am. J. Roentgenol.*, 1923, x, 396.

Lymphosarcoma of the tonsil, the thyroid, and both testicles. H. L. ROCHER and C. LASSERRE. *J. de méd. de Bordeaux*, 1923, xcv, 154.

A new artery clamp for tying off deep tonsillar vessels. A. KAHN. *Laryngoscope*, 1923, xxxiii, 369.

A consideration of the various problems presented by hæmorrhage occurring in connection with operations on the tonsils. P. G. GOLDSMITH. *Canadian Pract.*, 1923, xlviii, 175.

Death following operation for the removal of the tonsils. F. W. BAILEY. *Laryngoscope*, 1923, xxxiii, 384.

Lessons to be learned from the results of tonsillectomies in adult life: observations in more than 300 cases. W. C. ALVAREZ. *J. Am. M. Ass.*, 1923, lxxx, 1513.

Surgical diathermy in the treatment of malignant disease of the throat. W. S. SYME. *Glasgow M. J.*, 1923, n.s.xvii, 221. [219]

An extralaryngeal blood cyst in a 7 weeks' baby. H. B. DECHERD. *Texas State J. M.*, 1923, xix, 41.

Death from acute oedema of the larynx due to boxing. K. VON SURY. *Ztschr. f. d. ges. gerichtl. Med.*, 1922, l, 695.

The treatment of tuberculous laryngitis by salts of the rare earths of the cerium type. G. PORTMANN. *Med. Press*, 1923, n.s.cxxv, 396.

Laryngeal paralysis associated with the jugular foramen syndrome and other syndromes. G. B. NEW. *Am. J. M. Sc.*, 1923, clxv, 727. [220]

Operative procedures in the treatment of stenosis of the larynx caused by bilateral paralysis of the abductor muscles, with special reference to a new method by means of which it is suggested that the airway may be permanently enlarged and the patient decannulated. I. MOORE. *Proc. Roy. Soc. Med., Lond.*, 1923, xvi, Sect. Laryngol., 32. [220]

The importance of infection during laryngectomy and a contribution to the technique of this operation. A. PRÉCECHTĚL. *Acta oto-laryngol.*, 1922, iv, 352. [221]

Neck

The functional diagnosis of the thyroid. S. M. NEUSCHLOSZ. *Verhandl. d. deutsch. Gesellsch. f. inn. Med.*, 1922, 380.

The functional diagnosis of the thyroid. A. HELLWIG and S. M. NEUSCHLOSZ. *Klin. Wchnschr.*, 1922, i, 1988.

A permissible breakfast prior to basal metabolism measurements. C. G. BENEDICT and F. G. BENEDICT. *Boston M. & S. J.*, 1923, clxxxviii, 849.

Chronic thyroiditis. W. S. THOMAS and C. W. WEBB. *Clifton Med. Bull.*, 1923, ix, 1.

Suppurative thyroiditis due to paratyphoid. CARNOT and BLAMOUTIER. *Bull. et mém. Soc. méd. d. hôp. de Par.*, 1923, 38, xxxix, 66.

Hyperthyroidism. J. B. POLLARD. *U. S. Naval M. Bull.*, 1923, xviii, 585.

The clinical value of the Goetsch test. J. M. READ and R. S. HIATT. *Med. Clin. N. Am.*, 1923, vi, 1527.

A review of the treatment of hyperthyroidism by all methods, with a summary of the authors' experience with roentgen therapy. T. A. GROOVER, A. C. CHRISTIE, and E. A. MERRITT. *Am. J. Roentgenol.*, 1923, x, 385.

The therapeutic classification of goiter. I. BRAM. *Ohio State M. J.*, 1923, xix, 312.

The pathological anatomy of goiter in connection with the clinical symptoms. A. DE CALUWE. *Vlaamse geneesk. Tijdschr.*, 1923, iv, 25.

The pathological physiology of the different varieties of goiter and its influence on the biology. F. DE QUERVAIN. *Schweiz. med. Wchnschr.*, 1923, liii, 10.

The constitutional somatic character of various diseases, particularly goiter. V. ORATOR and H. POECH. *Mitt. a. d. Grenzgeb. d. Med. u. Chir.*, 1923, xxxvi, 393.

The parasitic etiology of endemic goiter. L. MERK. *Mitt. a. d. Grenzgeb. d. Med. u. Chir.*, 1923, xxxvi, 139.

The parasitic etiology of endemic goiter. C. WEGELIN. *Mitt. a. d. Grenzgeb. d. Med. u. Chir.*, 1923, xxxvi, 134.

The development of retropharyngeal struma. O. MAIER. *Arch. f. klin. Chir.*, 1923, cxvii, 836.

Simple goiter—its local prevalence. C. H. WATT. *J. Med. Ass. Georgia*, 1923, xii, 177.

The pathology of nodular (adenomatous?) goiters in patients with, and in those without, symptoms of hyperthyroidism. L. B. WILSON. *Am. J. M. Sc.*, 1923, clxv, 738.

What types of goiter should receive medical treatment? D. GUTHRIE. *Atlantic M. J.*, 1923, xxvi, 506. [221]

The therapeutic use of iodine in goiter. N. JAGIÉ and G. SPENGLER. *Wien klin. Wchnschr.*, 1923, xxxvi, 264.

Statistical discussion on goiter. M. STOSS. *Deutsche Ztschr. f. Chir.*, 1922, clxxvi, 325.

Lowering the morbidity and mortality rate of toxic goiter. J. E. ELSE. *Northwest Med.*, 1923, xxii, 167.

The venous pulse and apex beat in Basedow's disease. P. SAINTON and A. MOUGEOT. *Bull. et mém. Soc. méd. d. hôp. de Par.*, 1923, 38, xxxix, 415.

Basedow's disease: diagnostic and prognostic points. A. TROELL. *Arch. f. klin. Chir.*, 1923, cxvii, 664.

Roentgen therapy of Basedow's disease. E. BROCK. *Therap. d. Gegenw.*, 1923, lxiv, 64.

X-ray therapy in Basedow's disease. L. EDLING. *Fortschr. a. d. Geb. d. Roentgenstrahlen*, 1923, xxx, 117.

The roentgen-ray treatment of Basedow's disease. C. FRIED. *Deutsche Ztschr. f. Chir.*, 1922, clxxvi, 254.

Resection of the cervical sympathetic in Basedow's disease. H. KLOSE and A. HELLWIG. *Klin. Wchnschr.*, 1923, ii, 627.

The mortality in the surgery of exophthalmic goiter. J. DE J. PEMBERTON. *Surg., Gynec. & Obst.*, 1923, xxxvi, 458. [221]

Carcinoma of the thyroid extending into the mediastinum and spinal cord. F. R. WRIGHT. *Clifton Med. Bull.*, 1923, ix, 3.

X-ray and radium treatment of goiter. G. W. GRIER. *Atlantic M. J.*, 1923, xxvi, 516.

The roentgen rays in thyroid therapy. M. I. BIERMAN. *Minnesota Med.*, 1923, vi, 322.

The status of the surgical treatment of goiter. S. OSTROWSKI. *Therap. d. Gegenw.*, 1923, lxiv, 60, 142.

The surgical treatment of goiter. H. L. FOSS. *Atlantic M. J.*, 1923, xxvi, 508.

Thyroidectomy under local anesthesia. C. W. ALLEN. *South. M. J.*, 1923, xvi, 364.

The question of drainage after thyroidectomy. J. UJHELYI. *Arch. f. klin. Chir.*, 1922, cxvii, 522.

An analysis of my end-results in thyroid surgery. C. A. PORTER. *Surg., Gynec. & Obst.*, 1923, xxxvi, 621.

Tumors of the parathyroid glands and their relation to osteomalacia. B. STRAUCH. *Frankfurt. Ztschr. f. Path.*, 1922, xxviii, 319. [222]

Protection of the parathyroid glands. F. DE QUERVAIN. *Beitr. z. klin. Chir.*, 1923, cxviii, 197.

Postoperative tetany. M. LEBSCHKE. *Mitt. a. d. Grenzgeb. d. Med. u. Chir.*, 1922, xxxv, 389.

A new operation for the removal of glands of the neck. C. M. SQUIRRI. *Semana méd.*, 1923, xxx, 781.

SURGERY OF THE NERVOUS SYSTEM

Brain and Its Coverings; Cranial Nerves

Head injuries. H. C. NAFFZIGER. *Surg. Clin. N. Am.*, 1923, iii, 699.

Cranio cerebral traumatism. V. F. TATO. *Siglo méd.*, 1923, lxx, 457, 480, 506, 534, 558, 579.

The mechanical processes in concussion and contusion of the brain. F. GENEWEIN. *Beitr. z. klin. Chir.*, 1923, cxviii, 348. [223]

Brain injuries with predominating general symptoms: their late and persisting results. A. RITTER. *Deutsche Ztschr. f. Chir.*, 1922, clxxv, 1. [223]

Traumatic paraplegia: treatment and prognosis. O. H. GOTCH. *Brit. M. J.*, 1923, i, 849. [224]

The fate of those suffering head injuries. A. FUCHS. *Wien. med. Wchnschr.*, 1922, lxxii, 2009. [224]

The psychotherapy of post-traumatic neuroses: lump-sum settlement. J. CARTON. *Med. Clin. N. Am.*, 1923, vi, 1551.

Some cerebral manifestations of general infection. N. B. GWYN. *Canadian M. Ass. J.*, 1923, xiii, 326.

The treatment of brain abscess by the induction of protective adhesions between the brain cortex and the dura before the establishment of drainage. C. E. DOWMAN. *Arch. Surg.*, 1923, vi, 747. [225]

A case of acute polio-encephalitis in infancy associated with glycosuria. T. P. WILLIAMS. *Lancet*, 1923, cciv, 1057.

Acute epidemic encephalitis. K. WINSLOW. *Northwest Med.*, 1923, xxii, 160.

The differential diagnosis of epidemic encephalitis, bulbar poliomyelitis, and tuberculous meningitis. A. D. SMITH. *Arch. Pediat.*, 1923, xl, 336.

Lethargic encephalitis in Wisconsin. W. F. LORENZ and W. J. BLECKWENN. Wisconsin M. J., 1923, xxi, 547.

Encephalitis lethargica and its secondary manifestations. M. NONNE. An. Fac. de med., Univ. de Montevideo, 1922, vii, 539.

A case of postencephalitic adiposity. E. SARTORELLI. Policlin., Rome, 1923, xxx, sez. prat., 624.

Cerebral syphilis. N. H. BRUSH. California State J. M., 1923, xxi, 212.

Internal hydrocephalus on the left side with the symptoms of a cerebral tumor in the Rolandic zone. J. M. OBARRO. Rev. Asoc. méd. argent., 1922, xxxv, 791.

Resection of the choroid plexus in unilateral severe hydrocephalus internus. C. HINRICHSMEYER. Arch. f. klin. Chir., 1923, cxxii, 742.

The surgical treatment of cerebral conditions causing intracranial pressure. H. A. BRUCE. Canadian M. Ass. J., 1923, xiii, 323.

The administration of hypertonic salt solutions for the relief of intracranial pressure. T. FAY. J. Am. M. Ass., 1923, lxxx, 1445. [225]

Brain tumors in young children: a clinical and pathological study. M. WOLLSTEIN and F. H. BARTLETT. Am. J. Dis. Child., 1923, xxv, 257. [226]

Cranial and intracranial endotheliomata. W. G. PENFIELD. Surg., Gynec. & Obst., 1923, xxxvi, 657. [226]

Cerebral tumor. BOXWELL. Brit. M. J., 1923, i, 811.

A further report on cerebral tumors. O. D'ALLOCCO. Policlin., Rome, 1923, xxx, sez. med., 207. [226]

The roentgenographic determination of the location of brain tumors. A. WIMMER. Hosp.-Tid., 1923, lxxvi, 53.

Air injection in brain and spinal cord diagnosis. W. WEIGELDT. Deutsche Ztschr. f. Nervenhe., 1923, lxxvii, 165.

The value of pneumoventriculography (encephalography in brain diagnostics. W. DENK. Mitt. a. d. Grenzgeb. d. Med. u. Chir., 1923, xxxvi, 9. [226]

A method for the localization of brain tumors in comatose patients; the determination of a communication between the cerebral ventricles and the estimation of their position and size without the injection of air (ventricular estimation). W. E. DANDY. Surg., Gynec. & Obst., 1923, xxxvi, 641.

A tumor of the left second temporal convolution without speech disturbance, verified by operation. C. JUARROS. Siglo méd., 1923, lxx, 501.

A cerebellopontile angle tumor first involving the fifth nerve. D. C. WILSON. Clifton Med. Bull., 1923, ix, 24.

False localizing signs resulting from increased intracranial pressure. M. HARBIN. J. Med. Ass. Georgia, 1923, xii, 184.

Anæsthesia for cerebellar operations: some points in the technique. T. W. HIRSCH. Med. Press, 1923, n.s.cxxv, 377.

Further notes on cortical epilepsy exerted upon a damaged cortex by peripheral trauma. G. ROBERTSON. Practitioner, 1923, cx, 383.

Investigations of the chemical composition of the blood in epilepsy. G. PEZZALI. Riforma med., 1923, xxxix, 433.

Dyspituitarism and epilepsy. H. LISSER and C. E. NIXON. Med. Clin. N. Am., 1923, vi, 1471.

The pathology of the hypophysis. A. SCHIFF. Arch. de med. chir. y especial., 1923, xi, 247.

Gummata of the hypophysis. E. COHN. Arch. f. path. Anat., 1923, ccxli, 452.

A review of the development of the pituitary and pineal organs. M. DEWEY. Internat. J. Orthodont., Oral Surg., & Radiography, 1923, ix, 346.

Trifacial neuralgia and its treatment. A. W. ADSON. Northwest Med., 1923, xxii, 156.

Preservation of the facial nerve in the radical treatment of parotid tumors. A. W. ADSON and W. O. OTT. Arch. Surg., 1923, vi, 739. [227]

Facial hypoglossal anastomosis. J. A. CALDWELL. Cincinnati J. Med., 1923, iv, 147.

An examination of the spinal accessory nerves from a case of bilateral acquired spasmodic torticollis. C. M. BYRNES. Bull. Johns Hopkins Hosp., Balt., 1923, xxxiv, 125. [228]

Septic meningitis in a 5-year-old child. W. A. MULHERIN and V. P. SYDENSTRICKER. South. M. J., 1923, xvi, 348.

Streptococcal meningitis. S. G. ASKEY. Lancet, 1923, cciv, 952.

An atypical form of cerebrospinal meningitis. G. R. LAFORA. Siglo méd., 1923, lxx, 431.

Meningeal reactions in infancy secondary to infectious processes. J. M. MACERA. Semana méd., 1923, xxx, 867.

A case of acute suppurative meningitis. A. T. COOPER. Mil. Surgeon, 1923, lii, 543.

Calcification and ossification of the meninges. A. E. HALSTEAD and F. CHRISTOPHER. Arch. Surg., 1923, vi, 847.

The morbid anatomy and drainage of otitic meningitis. E. D. DAVIS. Med. Press, 1923, n.s.cxxv, 356.

A comparative study of the Wassermann reaction and the colloidal benzoin reaction in the cerebrospinal fluid. A. L. PEREZ. Clin. y lab., 1923, i, 431.

Spinal Cord and Its Coverings

Unusual hypothermy following a lesion of the cervical spine. S. I. DE LONG. Bull. et mém. Soc. méd. d. hôp. de Par., 1923, 3s.xxxix, 53.

Acute myelitis after over-exertion. R. FINKELNBURG. Aertzl. Sachverst.-Ztg., 1922, xxviii, 201.

Syringomyelia. M. L. GRAVES. Texas State J. M., 1923, xix, 11.

Syringomyelia and syphilis of the nervous system, with the report of a case of tabes with a syringomyelia syndrome. C. UHLER. Texas State J. M., 1923, xix, 17.

The early symptoms and the diagnosis of tumors of the spinal cord, with remarks on the surgical treatment. C. A. ELSBERG. Am. J. M. Sc., 1923, clxv, 719. [228]

Hæmangioma of the spinal cord. M. E. BLAHD. J. Am. M. Ass., 1923, lxxx, 1452.

Glioma of the spinal cord. R. W. HARVEY. Med. Clin. N. Am., 1923, vi, 1499.

A case of exceptionally rapid recovery following the removal of a spinal cord tumor. J. J. KEEGAN. Nebraska State M. J., 1923, viii, 176.

Peripheral Nerves

The differential diagnosis of neuritis and conditions simulating it. G. WILSON. J. Am. M. Ass., 1923, lxxx, 1443.

Congenital hypertrophy; report of a case with diffuse neurofibromatosis. W. C. CAMPBELL. Surg., Gynec. & Obst., 1923, xxxvi, 699.

The end-results of nerve suture after gunshot wounds of the War of 1914 to 1918. DIETERICH. Med. Klin., 1923, xix, 237. [228]

The Stoffel operation for spastic paralysis. C. H. HEYMAN. Surg., Gynec. & Obst., 1923, xxxvi, 613.

Artificial nerve branches for the innervation of paralyzed muscles. B. STOOKEY. Arch. Surg., 1923, vi, 731.

Trismus and clonus of the jaw controlled by alcohol injection of the inferior maxillary nerves. C. VINCENT and E. BERNARD. Bull. et mém. Soc. méd. d. hôp. de Par., 1923, 3s.xxxix, 281.

The indications for, and the results of, radical phrenicotomy. H. FISCHER. Klin. Wchnschr., 1923, ii, 535.

Sympathetic Nerves

The pathology and surgery of spastic neuroses. B. O. PRIBRAM. *Arch. f. klin. Chir.*, 1922, cxx, 207.

The position of the umbilicus in segmental paresis of the abdomen. V. ÖRN. *Acta med. Scand.*, 1923, lviii, 109.

Peri-arterial sympathectomy. A. WOJCIECHOWSKI. *Polska gaz. lek.*, 1922, i, 820. [229]

Peri-arterial sympathectomy in neurovascular disease. H. HIGIER. *Deutsche Ztschr. f. Nervenhe.*, 1922, lxxv, 9.

Peri-arterial sympathectomy in arteriosclerotic gangrene. H. MATHEIS. *Zentralbl. f. Chir.*, 1923, i, 309. [229]

A note on the treatment of chronic ulceration of the lower extremities. R. K. FORD. *Lancet*, 1923, cciv, 1105.

SURGERY OF THE CHEST

Chest Wall and Breast

Extrapleural thoracoplasty for pulmonary tuberculosis. W. MEYER. *Ann. Surg.*, 1923, lxxvii, 630.

Menstrual changes in the breast. A. ROSENBERG. *Zentralbl. f. Gynaek.*, 1923, xlvii, 111.

The female mammae in relation to the pelvic organs. D. HADDEN. *Am. J. Obst. & Gynec.*, 1923, v, 536.

Cancer of the breast. C. ROWNTREE. *Brit. M. J.*, 1923, i, 747.

Cancer of the breast. L. D. BULKLEY. *Am. J. Clin. Med.*, 1923, xxx, 319.

The regression of spontaneous mammary carcinoma in the mouse. W. H. WOGLOM. *J. Cancer Research*, 1922, vii, 379.

The treatment of breast cancer. S. FRAENKEL and A. SABLUDOWSKI. *Moskow. M. J.*, 1922, ii, 50.

The development of breast surgery in the past twenty-five years. O. KLEINSCHMIDT. *Klin. Wchnschr.*, 1923, ii, 621.

Postoperative prophylactic treatment of carcinoma of the breast. C. M. ROVSING. *Arch. f. klin. Chir.*, 1923, cxxiv, 92.

Trachea, Lungs, and Pleura

Traumatic asphyxia; with especial reference to its ocular and visual disturbances. G. J. HEUER. *Surg., Gynec. & Obst.*, 1923, xxxvi, 686.

An air-ball in the trachea. J. I. LYONS. *Brit. M. J.*, 1923, i, 809.

An unrecognized intrabronchial foreign body, simulating chronic bronchitis. E. HALPHEN. *Bull. et mém. Soc. méd. d. hôp. de Par.*, 1923, 3s.xxxix, 114.

The bronchoscopic removal of foreign bodies from the air passages. H. T. AYNESWORTH. *Texas State J. M.*, 1923, xix, 38.

Intubation and tracheotomy for diphtheria in the civil hospital of Venice. E. B. LAY. *Riforma med.*, 1923, xxxix, 444.

Traumatic pneumothorax. F. S. CHILD, JR. *J. Am. M. Ass.*, 1923, lxxx, 1452.

Hyatid cysts of the lungs and pleura. R. HALAHAN. *Surg., Gynec. & Obst.*, 1923, xxxvi, 354. [230]

The diagnosis of hydatid cyst of the upper lobe of the lung. B. MASCI. *Policlin.*, Rome, 1923, xxx, sez. prat., 617.

Actinomycosis of the lungs simulating tuberculosis. H. BESSER. *N. York M. J. & Med. Rec.*, 1923, cxvii, 623.

Lung abscess. G. J. HEUER. *Minnesota Med.*, 1923, vi, 279.

Pulmonary abscess. F. T. CLARK. *Boston M. & S. J.*, 1923, clxxxviii, 846.

Lung abscess. E. A. GRAHAM. *Surg., Gynec. & Obst.*, 1923, xxxvi, 719.

The etiology and clinical features of lung abscess. J. HOMANS. *Boston M. & S. J.*, 1923, clxxxviii, 577.

The physiology of pulmonary embolism as disclosed by the quantitative occlusion of the pulmonary artery. G. E. HAGGART and A. M. WALKER. *Arch. Surg.*, 1923, vi, 764.

Pulmonary embolism following the filling of a fistula with Beck's bismuth paste. A. LEB. *Beitr. z. klin. Chir.*, 1923, cxxviii, 515.

Gangrene of the lungs. H. BINNEY. *Boston M. & S. J.*, 1923, clxxxviii, 844.

Preliminary pneumothorax in lung surgery. J. ARCE. *Surg., Gynec. & Obst.*, 1923, xxxvi, 697.

Pleural epilepsy. E. LEURET. *J. de méd. de Bordeaux*, 1923, xcv, 314.

Cyto-chemical studies of a cancerous pleurisy which disappeared under radiation therapy. LEOPER, JOLY, and TONNET. *Bull. et mém. Soc. méd. d. hôp. de Par.*, 1923, 3s.xxxix, 166.

Empyema and abscess of the lung. F. B. MOWBRAY. *Canadian M. Ass. J.*, 1923, xiii, 320.

The treatment of chronic empyema. ESAU. *Deutsche Ztschr. f. Chir.*, 1923, clxxvii, 55.

The prevention and treatment of chronic empyema. C. A. HEDBLUM. *South. M. & S.*, 1923, lxxxv, 229.

Heart and Pericardium

The fluoroscope in modern cardiology. L. F. BISHOP. *N. York State J. M.*, 1923, xxiii, 205.

Unusual cardiac and cerebral metastases in melanoma. C. V. WELLER. *J. Cancer Research*, 1922, vii, 313. [230]

The surgical treatment of angina pectoris. W. B. COFFEY and P. K. BROWN. *Arch. Int. Med.*, 1923, xxxi, 200. [230]

Spontaneous rupture of the heart. R. L. LEY. *Lancet*, 1923, cciv, 953.

Spontaneous rupture of the heart in a case of ulcerative endocarditis. T. A. CLAYTOR. *J. Am. M. Ass.*, 1923, lxxx, 1371.

Therapeutic pneumopericardium. M. CASTEX. *Bull. et mém. Soc. méd. d. hôp. de Par.*, 1923, 3s.xxxix, 545.

The technique of puncture for pericardial exudate. KUELBS. *Verhandl. d. deutsch. Gesellsch. f. inn. Med.*, 1922, 430.

Esophagus and Mediastinum

Enlarged thymus—clinical findings in a series of cases. J. P. PARSONS. *Med. Clin. N. Am.*, 1923, vi, 1319. [231]

The enlarged thymus gland from the viewpoint of the laryngologist. L. HUBERT. *N. York M. J. & Med. Rec.*, 1923, cxvii, 410. [231]

Malignant tumors of the thymus. H. LARGIADER. *Frankfurt. Ztschr. f. Path.*, 1923, xxix, 228.

A specimen of congenital stricture of the esophagus. R. HUTCHISON. *Proc. Roy. Soc. Med., Lond.*, 1923, xvi, Sect. Dis. Child., 42.

- Cardiospasm with oesophageal diverticula. P. P. VINSON. N. York M. J. & Med. Rec., 1923, cxvii, 540.
- The early treatment of oesophageal erosions. H. SALZER. Wien. klin. Wchnschr., 1923, xxxvi, 295.
- The metastasizing tendency of oesophagus carcinoma. G. F. HELSLEY. Ann. Surg., 1923, lxxvii, 272. [231]
- Experimental surgery of the thoracic oesophagus. R. T. MILLER, JR., and W. D. W. ANDRUS. Bull. Johns Hopkins Hosp., Balt., 1923, xxxiv, 109. [232]

Miscellaneous

- A case of multiple hæmangiomatous tumors of the thorax. R. SCHWEIZER. Schweiz. med. Wchnschr., 1923, liii, 243.
- A clinical and roentgen-ray study of tuberculous broncho-adenopathy. T. FRAZER and J. D. MACRAE. J. Am. M. Ass., 1923, lxxx, 1292.
- Subphrenic abscess. G. PISANO. Policlin., 1923, xxx, sez. chir., 74.

SURGERY OF THE ABDOMEN

Abdominal Wall and Peritoneum

- A note on direct and indirect inguinal hernia on the same side. H. GRIFFITHS. Lancet, 1923, cciv, 1056.
- Hernia of the female internal genitalia through the inguinal canal. H. W. HEWITT. Am. J. Obst. & Gynec., 1923, v, 530.
- Tumors of the true pelvis and their relation to femoral hernia. F. H. BARDENHEUER. Zentralbl. f. Chir., 1923, l, 560.
- The treatment of gangrenous femoral hernia. A. BECKER. Deutsche Ztschr. f. Chir., 1922, clxxvi, 281.
- Transposition of the rectus muscle in herniotomy. W. S. SCHLEY. Ann. Surg., 1923, lxxvii, 605.
- The technique of suture of the hernial opening in hernia with a broad base. C. MAYER. Zentralbl. f. Chir., 1923, l, 257.
- The radical operation for hernia in children. E. GOHR-BANDT. Klin. Wchnschr., 1923, ii, 640.
- Hæmoperitoneum from ruptured corpus luteum. A. STRAUSS. J. Am. M. Ass., 1923, lxxx, 1287.
- Bile peritonitis without perforation. H. BURCKHARDT. Beitr. z. klin. Chir., 1923, cxxviii, 209.
- Tuberculous peritonitis. C. N. DOWD. Ann. Surg., 1923, lxxvii, 632.
- The treatment of tuberculosis of the peritoneum in children. H. FINKELSTEIN and F. ROHR. Samml. zwangl. Abhandl. a. d. Geb. d. Verdauung-su. Stoffwechs.-Krankh., 1922, viii, 1. [233]
- The evolution of the modern treatment of septic peritonitis. H. W. CARSON. Lancet, 1923, cciv, 1035.
- A third omentum. M. I. BIERMAN and W. M. JONES. Surg., Gynec. & Obst., 1923, xxxvi, 708.
- An unusual tumor of the omentum (actinomycoma). F. MATZ. Deutsche Ztschr. f. Chir., 1922, clxxvi, 217. [233]
- A case of hernia of the mesentery of Meckel's diverticula. A. SOFOTEROFF. Zentralbl. f. Chir., 1923, l, 669.
- The diagnosis of cirrhosis of the mesentery. I. SCHILL. Orvosi hetil., 1923, lxxvii, 15.
- The surgical pathology of the transverse mesocolon, with particular consideration of fissure production. E. HESSE. Beitr. z. klin. Chir., 1923, cxxviii, 461. [233]
- Cicatrization of the mesosigmoid. A. LEŚNIEWSKI. Polska gaz. lek., 1923, ii, 1, 20. [234]

Gastro-Intestinal Tract

- Saliva in nutritive processes. C. JACKSON. Arch. Pediat., 1923, xl, 324.
- The question of a gastric hormone. R. K. S. LIM. Quart. J. Exper. Physiol., 1922, xiii, 79. [234]
- An obliterated stomach muscle. E. BIRCHER. Deutsche Ztschr. f. Chir., 1922, clxxiv, 424.
- Volvolus of the stomach with spontaneous recovery. K. WEISS. Fortschr. a. d. Geb. d. Roentgenstrahlen, 1923, xxx, 338.

- True diverticula of the stomach. L. ROTHBART. Fortschr. a. d. Geb. d. Roentgenstrahlen, 1923, xxx, 563.
- The fractional test meal in the study of disorders of the gastro-intestinal tract: an analysis of 174 verified cases. D. HUNTER. Quart. J. Med., 1923, xvi, 95.
- The clinical evaluation of fractional gastric analyses. J. FORMAN. Ohio State M. J., 1923, xix, 337.
- The nurse and the fractional Ewald meal by the Rehfuß method. E. CONNOLLY. South. M. & S., 1923, lxxv, 261.
- Symposium on indigestion, its varieties and treatment. C. S. FLEMING, F. G. THOMSON, and F. FRASER. Lancet, 1923, cciv, 902.
- Diagnosis in the chronic dyspepsias. C. S. McVICAR. Canadian Pract., 1923, xlviii, 137. [234]
- So-called gas in the stomach. F. W. PALFREY. Boston M. & S. J., 1923, clxxxviii, 800.
- Gastro-enteric colic: abdominal exploration. E. P. SIRI. Semana méd., 1923, xxx, 901.
- Acute dilatation of the stomach. T. BISZEWSKI and W. CZARNOCKI. Polska gaz. lek., 1922, i, 864.
- Cardiospasm associated with aneurism, aortitis, and angina, with a report of twenty-three cases. J. R. VERBRUCKE, JR. South. M. J., 1923, xvi, 338.
- Spasm at the cardia and cardiospasm. J. FRIEDENWALD and T. H. MORRISON. South. M. J., 1923, xvi, 341.
- Cardiospasm in the aged. J. H. ZAAIJER. Ann. Surg., 1923, lxxvii, 615.
- The diagnostic value of the atropine test in pyloric conditions. E. OETVOES. Roentgenologia, 1922, i, 81. [235]
- Pylorospasm. F. J. KINBERGER. N. Orleans M. & S. J., 1923, lxxv, 722.
- The surgery of pylorospasm in nursing infants. B. HEILE. Zentralbl. f. Chir., 1923, l, 162. [235]
- The diagnosis and treatment of pyloric stenosis. W. P. LUCAS. Med. Clin. N. Am., 1923, vi, 1393.
- Atropine in the treatment of congenital pyloric stenosis. M. H. BASS. Med. Clin. N. Am., 1922, vi, 579. [236]
- Three cases of syphilis of the stomach. R. ALESSANDRI. Ann. ital. di chir., 1923, ii, 1.
- The neurogenic theory of gastric ulcer. P. I. STRADYN. Nowy Chir. Arch., 1922, ii, 538.
- A statistical inquiry into the efficiency of present-day methods of diagnosis of ulcers of the stomach and duodenum, and into the value of gastro-jejunosomy in their treatment. A. YOUNG, A. J. HUTTON, and J. S. BUCHANAN. Lancet, 1923, cciv, 681.
- The diagnosis of peptic ulcer and its bearings on treatment. T. CARWARDINE. Bristol M.-Chir. J., 1923, xl, 71. [236]
- The reliability of the X-ray diagnosis of gastric ulcer and gastric carcinoma (statistical). KURTZAEN. Fortschr. a. d. Geb. d. Roentgenstrahlen, 1923, xxx, 411.
- The pylorus and predisposition to ulcer. W. KOENNECKE. Zentralbl. f. Chir., 1923, l, 2. [237]
- Ulcer of the stomach and duodenum. E. S. JUDD. Minnesota Med., 1923, vi, 311.

- Gastric and duodenal ulcers. R. M. EVANS. Kentucky M. J., 1923, xxi, 214.
- The pathogenesis of peptic ulcer. J. E. SWEET, L. T. BUCKMAN, A. THOMAS, and E. M. BELL. Arch. Surg., 1923, vi, 837. [237]
- Multiple peptic ulcers. M. M. PORTIS and S. A. PORTIS. J. Radiol., 1923, iv, 151. [238]
- The experimental production of peptic ulcer. F. C. MANN and C. S. WILLIAMSON. Ann. Surg., 1923, lxxvii, 409. [238]
- Perforation of a gastric ulcer by the stomach tube: report of a case. G. SCHWARTZ. J. Am. M. Ass., 1923, lxxx, 1520.
- Perforation of gastric and duodenal ulcer into the free peritoneal cavity. N. L. BLUMENTHAL. Nowy Chir. Arch., 1922, ii, 302.
- Perforated ulcer of the stomach and duodenum. E. C. CUTLER and F. C. NEWTON. Boston M. & S. J., 1923, clxxviii, 789.
- Walled-off and penetrating ulcers of the stomach and duodenum. A. VAN DE BRUINE PLOOS. Arch. f. Verdauungskr., 1923, xxxi, 33.
- The significance of oldium albicans in chronic gastric ulcer. E. KIRCH and E. STAHNKE. Mitt. a. d. Grenzgeb. d. Med. u. Chir., 1923, xxxvi, 174.
- The preparatory treatment of patients for operations upon the gastro-intestinal tract. O. H. HART. J. Michigan State M. Soc., 1923, xxii, 242.
- The surgical treatment of gastric ulcer. G. KOWARSKY. Medizinski J., 1922, ii, 79, 540.
- Conservative alteration of the gastric pathway in the treatment of gastric ulcer. C. POCHHAMMER. Arch. f. klin. Chir., 1922, cxxi, 276.
- Gastro-enterostomy as the operation of choice in gastric and duodenal ulcer. N. M. SAWKOFF. Nowy Chir. Arch., 1922, ii, 513.
- The value of the different methods of gastro-enterostomy. W. DOBROWOLSKI. Wratschebnaja Djelo, 1922, v, 68.
- An apron used in performing bowel and stomach anastomosis. F. H. LAHEY. Surg., Gynec. & Obst., 1923, xxxvi, 718.
- A simplified technique for gastro-enterostomy. M. N. SCHAPIRO. Medizinski J., 1922, No. 8.
- Physiological gastro-enteropexy. C. HAMMESFAHR. Zentralbl. f. Chir., 1923, i, 254.
- A singular case of internal intestinal incarceration after gastro-enterostomy. P. RIESS. Zentralbl. f. Chir., 1923, i, 638.
- Physiological resection of the pylorus in gastric ulcer. I. G. LUKOWSKY. Wratschebnaja Gaz., 1923, 56.
- Two cases of high obstruction after gastro-enterostomy. OUDARD. Bull. et mém. Soc. de chir. de Par., 1923, xlix, 662.
- Unusual causes of postoperative weakness of the heart after gastro-enterostomy. E. BRACK. Deutsche Ztschr. f. Chir., 1922, clxxv, 138.
- Gastrectomy for precancerous ulcer. I. D. WHEELER. Brit. M. J., 1923, i, 812.
- Direct reunion of the stomach and duodenum after gastric resection by the invagination method. R. GOEPEL. Zentralbl. f. Chir., 1923, i, 201. [238]
- Goepele's cuff method after stomach resection. F. MANDL and M. GARA. Zentralbl. f. Chir., 1923, i, 636.
- Goepele's cuff method in operations on the cardiac portion of the stomach. C. HOERHAMMER. Zentralbl. f. Chir., 1923, i, 633.
- Experimental investigations on changes in digestion after operations on the stomach and intestines. E. ENDERLEN, E. FREUDENBERG, and E. VON REDWITZ. Klin. Wchnschr., 1923, ii, 210. [239]
- Benign tumors of the stomach. J. DOUGLAS. Ann. Surg., 1923, lxxvii, 580. [239]
- A case of benign tumor of the stomach. F. ERKES. Zentralbl. f. Chir., 1923, i, 256.
- The age incidence of gastric cancer, with special reference to cancer in the young. M. GOLOB. J. Am. M. Ass., 1923, lxxx, 1299.
- The application of the study of autolyzed products to the early diagnosis of carcinoma of the stomach. F. RAMOND and P. ZIZINE. Bull. et mém. Soc. méd. d. hôp. de Par., 1923, 3s.xxxix, 196.
- Glycolysis in the course of carcinoma of the stomach and its possible diagnostic value. F. RAMOND, G. PARTURIER, and P. ZIZINE. Bull. et mém. Soc. méd. d. hôp. de Par., 1923, 3s.xxxix, 195.
- Gastric cancer of intestinal structure. RAMOND, JANET, and LÉVY. Bull. et mém. Soc. méd. d. hôp. de Par., 1923, 3s.xxxix, 294.
- Gastric papillary carcinoma. F. B. MCMAHON. Wisconsin M. J., 1923, xxi, 535.
- The results of thirty gastrectomies for carcinoma and ulcer. CHARRIER and CHARBONNEL. J. de méd. de Bordeaux, 1923, xcv, 303.
- Primary sarcoma of the stomach and trauma. The traumatic genesis of tumors. G. PISTOCCHI. Policlin., Rome, 1923, xxx, sez. chir., 83.
- On acute purulent processes in the intestinal wall; a contribution to the knowledge of phlegmonous enteritis. G. BOHMANSSON. Acta chirug. Scand., 1923, lv, 437. [240]
- The status of present-day methods of examination in the diagnosis of intestinal tuberculosis. W. S. LEMON. Minnesota Med., 1923, vi, 300.
- Intestinal stasis. E. E. POOS. Illinois M. J., 1923, xliii, 402.
- Intestinal paralysis with diarrhoea. A. SZENES. Deutsche Ztschr. f. Chir., 1923, clxxvii, 145.
- Developmental anomalies of the intestines as a cause of intestinal obstruction. K. BRAEUNIG. Deutsche Ztschr. f. Chir., 1922, clxxvi, 227. [240]
- Some observations on intestinal obstruction. J. W. LANE. Boston M. & S. J., 1923, clxxxviii, 725.
- A case of intestinal obstruction. S. S. RAO. Lancet, 1923, cciv, 1004.
- The value of enterostomy in intestinal obstruction. J. W. LONG. Texas State J. M., 1923, xviii, 606. [240]
- Enterostomy. E. DRENNEN. South. M. J., 1923, xvi, 366.
- Combination ileus. K. SCHLAEFFER. Ann. Surg., 1923, lxxvii, 594.
- Experimental research upon artificial stenosis of the intestine. G. CAVINA. Ann. ital. di chir., 1923, ii, 72. [241]
- A foreign body in the duodenum in a child of 8 months; removal; recovery. BERGERET. Bull. et mém. Soc. de chir. de Par., 1923, xlix, 596.
- A case of duodenal diverticulum. D. P. PENHALLOW. J. Am. M. Ass., 1923, lxxx, 1372.
- The diagnosis of duodenal ulcer with reference to the local, direct X-ray signs. A. AKERLUND. Fortschr. a. d. Geb. d. Roentgenstrahlen, 1923, xxx, 43, 50.
- The X-ray diagnosis of duodenal ulcer with the help of the direct symptoms. HAUDEK. Fortschr. a. d. Geb. d. Roentgenstrahlen, 1923, xxx, 39, 50.
- The reliability of the roentgen-ray diagnosis of duodenal ulcer. M. HAUDEK. Wien. klin. Wchnschr., 1922, xxxv, 987. [241]
- The reliability of the roentgen-ray diagnosis of duodenal ulcer. G. SINGER. Wien. klin. Wchnschr., 1922, xxxvi, 993.
- The relative value of X-ray evidence in the diagnosis of duodenal ulcer. C. D. ENFIELD. J. Radiol., 1923, iv, 127. [241]

Partial obstruction at the duodenojejunal junction as a cause of ulcer of the duodenum. E. P. SLOAN. *J. Am. M. Ass.*, 1923, lxxx, 977.

The operative treatment of non-perforated duodenal ulcer. B. K. FINKELSTEIN. *Nowy Chir. Arch.*, 1922, ii, 388.

A case of carcinomatous ulcer of the duodenum. L. DISQUE, JR. *Arch. f. Verdauungskr.*, 1923, xxx, 306. [242]

Duodenectomy: a report of an experiment four years after the operation. F. C. MANN and K. KAWAMURA. *J. Lab. & Clin. Med.*, 1923, viii, 523. [242]

A leiomyoma of the first portion of the jejunum. G. BRENDOLAN. *Policlin.*, Rome, 1923, xxx, sez. chir., 113.

Perforated Meckel's diverticulum. D. B. PFEIFFER. *Ann. Surg.*, 1923, lxxvii, 622.

Acute ulcerated ileocolitis. E. L. BENJAMIN. *N. York State J. M.*, 1923, xxiii, 208.

Primary intestinal phlegmon. A. BRAUN. *Beitr. z. klin. Chir.*, 1923, cxviii, 142. [242]

Intussusception: with a report of four cases. L. D. ENGLERTH and F. E. KELLER. *Therap. Gaz.*, 1923, 3s.xxxix, 235.

Intussusception in an adult due to an adenoma in the ileum. C. N. DOWD. *Ann. Surg.*, 1923, lxxvii, 633.

Three cases of intestinal intussusception in children, one of which was treated by appendicostomy. DESCARPENTRIES. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 609.

Spontaneous reduction of an intussusception. A. FULLERTON. *Practitioner*, 1923, cx, 381.

A case of intussusception starting in a large Meckel's diverticulum. N. L. HOOD. *Lancet*, 1923, cciv, 1004.

Intussusception supervening on congenital stenosis of the ileum. W. T. WARWICK. *Brit. M. J.*, 1923, i, 804.

Ileocolic intussusception of a cæcal tumor with glandular metastases. M. VEAUDEAU. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 655.

The surgery of constipation. A. MAÑÉ. *An. Fac. de med.*, Univ. de Montevideo, 1922, vii, 585.

Surgical possibilities in traumatic rupture of the intestine. A. L. LOCKWOOD. *Canadian M. Ass. J.*, 1923, xiii, 311.

Intestinal rupture from external trauma without extra-abdominal evidence: report of two cases. C. A. VANCE. *South. M. J.*, 1923, xvi, 380.

Megacolon. A. A. MATTHEWS. *Northwest Med.*, 1923, xxii, 135. [242]

Congenital idiopathic dilatation of the colon. D. FIRTH and K. PLAYFAIR. *Arch. Radiol. & Electrotherapy*, 1923, xxvii, 321. [243]

Interposition of the colon. A. ZEITLIN. *Medizinski J.*, 1922, ii, 570.

Congenital reduplication of the deeper portion of the intestine. J. GLATZEL. *Polska gaz. lek.*, 1922, i, 669.

Enteroliths. W. W. BOARDMAN. *Am. J. Roentgenol.*, 1923, x, 369.

Ulcerative colitis. H. ROLLESTON. *Lancet*, 1923, cciv, 939.

Acute pseudo-dysenteric colitis, postoperative gastrointestinal hemorrhage, and ulcer formation. W. GOLDSCHMIDT. *Mitt. a. d. Grenzgeb. d. Med. u. Chir.*, 1923, xxxvi, 151.

Hemorrhage from the large bowel caused by an adherent appendix epiploica. R. E. SMITH. *Brit. M. J.*, 1923, i, 853.

The technique and results of extirpation of tumors of the large intestine. L. LE NOUENE. *Bruxelles-méd.*, 1923, iii, 677.

Roentgenological signs of cancer of the colon. R. D. CARMAN. *J. Radiol.*, 1923, iv, 147. [243]

Sliding herniæ of the cæcum and appendix in children. V. C. DAVID. *Ann. Surg.*, 1923, lxxvii, 438.

The appendix as an endocrine gland. A. PERERA. *Arch. de med., cirug. y especial*, 1923, xi, 200.

Pseudo-appendicitis and idiopathic serous peritonitis. H. KUERMELL. *Therap. d. Gegenw.*, 1923, lxiv, 121.

A study of diverticulum formation in the appendix. A. P. STOUT. *Arch. Surg.*, 1923, vi, 793.

The appendix and its rôle as a masquerader. H. FOWLER. *Med. Times*, 1923, li, 57. [244]

Appendicitis in children 14 years of age and under. K. SPEED. *Am. J. Surg.*, 1923, xxxvii, 97. [245]

The early diagnosis of appendicitis. R. ROVE. *Presse méd.*, Par., 1923, xxxi, 409.

The X-ray examination of the appendix. A. HENSZELMANN. *Roentgenologia*, 1922, i, 2.

The clinical importance of the chronic changes in the appendix which are discovered by the roentgen ray. F. W. WHITE. *Boston M. & S. J.*, 1923, clxxxviii, 587.

Nerve disturbances in the abdominal wall in appendicitis. B. SZERSYNSKI. *Polska gaz. lek.*, 1922, i, 816.

The etiology of traumatic appendicitis. N. A. LUDINGTON. *J. Am. M. Ass.*, 1923, lxxx, 1448.

Bilharzial appendicitis. C. H. BAILEY and E. A. BULLARD. *Surg., Gynec. & Obst.*, 1923, xxxvi, 704.

The pathology in cases of appendicitis with diarrhoea. J. G. SHELDON and E. P. HELLER. *J. Missouri State M. Ass.*, 1923, xx, 172.

Acute gangrenous or perforative and suppurative retrocæcal appendicitis. J. N. JACKSON. *South. M. J.*, 1923, xvi, 282.

The roentgen diagnosis of so-called chronic appendicitis. F. EHRLICH. *Deutsche med. Wchnschr.*, 1923, xlix, 449.

Chronic appendicitis. C. L. ANDRUS. *U. S. Naval M. Bull.*, 1923, xviii, 589.

Chronic appendicitis. A. NAVARRO. *An. Fac. de med.*, Univ. de Montevideo, 1922, vii, 618.

A case of chronic appendicitis simulating angina pectoris. A. BASSLER. *J. Am. M. Ass.*, 1923, lxxx, 1454.

Chronic appendicitis and appendectomy. E. ROUFFART. *Gynec. et obst.*, 1923, vii, 115.

Operations for appendicitis and their complications (statistical). G. W. ALIPOFF. *Nowy Chir. Arch.*, 1922, ii, 397.

On septicæmic infection following operations for appendicitis: a prophylactic serum. H. H. BROWN. *Brit. M. J.*, 1923, i, 591.

Abnormalities of fixation of the ascending colon: the relation of the symptoms to the anatomical findings. A. A. MCCONNELL and T. G. HARDMAN. *Brit. J. Surg.*, 1923, x, 532. [245]

A case of perisigmoiditis verified by radiography. S. I. DE LONG and AUBOURG. *Bull. et mém. Soc. méd. d. hôp. de Par.*, 1923, 3s.xxxix, 423.

Perforation of the sigmoid colon by a scybalum. K. S. KENNARD and H. S. ALTMAN. *N. York State J. M.*, 1923, xxiii, 191.

Operations for the closure of an artificial anus. F. J. KAISER. *Zentralbl. f. Chir.*, 1923, i, 666.

The rectum in its relation to digestive disorders. B. ASMAN. *Kentucky M. J.*, 1923, xxi, 222.

Diseases of the rectum and sigmoid. H. STRAUSS. *Berlin: Urban & Schwarzenberg*, 1922.

Circumscribed proctitis of traumatic origin. W. A. ROLFE. *Boston M. & S. J.*, 1923, clxxxviii, 735.

Subacute massive proctitis. E. L. ELIASON. *Ann. Surg.*, 1923, lxxvii, 625.

A case of diffuse cavernous hæangioma of the rectum. HENNIG and SCHUETT. *Mitt. a. d. Grenzgeb. d. Med. u. Chir.*, 1923, xxxvi, 235.

Hæmorrhoids. R. HOOD. *N. York State J. M.*, 1923, xxiii, 210.

Syphilitic stricture of the rectum. W. R. RAINEY. *Illinois M. J.*, 1923, xliii, 370.

The surgical relief of non-malignant stricture of the rectum. C. J. DRUECK. Chicago M. Rec., 1923, xlv, 667.

The treatment by radiation of cancer of the rectum. H. H. BOWING and F. W. ANDERSON. Am. J. Roentgenol., 1923, x, 230.

The technique of resection of the rectum. H. BRAUN. Zentralbl. f. Chir., 1923, l, 250.

Resection of the rectum with restoration of the anal outlet. C. W. ALLEN. N. Orleans M. & S. J., 1923, lxxv, 695.

Abnormal closure of the anus by unilateral bloody division of the spine. H. KNAUS. Beitr. z. klin. Chir., 1923, cxxviii, 441.

New symptoms of anal fissure. K. SVEHLA. Monatsschr. f. Kinderh., 1923, xxiv, 769.

The technique of stool examination. M. C. CHENEY. Med. Clin. N. Am., 1923, vi, 1567.

Liver, Gall-Bladder, Pancreas, and Spleen

The movable liver and its successful treatment: a new method of operation based on the principle of supporting the liver from below and a plastic procedure on the abdominal wall with doubling of the aponeurosis. F. J. KAISER. Deutsche Ztschr. f. Chir., 1922, clxxv, 411.

Studies on the total bile. III. On the bile changes caused by a pressure obstacle to secretion; and on hydrohepatosis. P. D. McMASTER, G. O. BROUN, and P. ROUS. J. Exper. Med., 1923, xxxvii, 685.

Studies on the total bile. IV. The enterohepatic circulation of bile pigment. G. O. BROUN, P. D. McMASTER, and P. ROUS. J. Exper. Med., 1923, xxxvii, 699.

The pathology of human bile secretion and a report on polycholia. GUNDERMANN. Beitr. z. klin. Chir., 1923, cxxviii, 1.

Observations on the value of phenoltetrachlorophthalein in estimating liver function. G. M. PIERSOL and H. L. BOCKUS. Arch. Int. Med., 1923, xxxi, 623.

The results of ligating the hepatic artery: observations on the functional examination of the liver. A. RITTER. Mitt. a. d. Grenzgeb. d. Med. u. Chir., 1922, xxxv, 76.

Hepatitis, cholelithiasis, hydrops of the gall-bladder. C. G. HEYD. Surg., Clin. N. Am., 1923, iii, 373. [246]

The treatment of liver abscess by aspiration. P. MANSON-BAHR, G. C. LOW, J. J. PRATT, and A. L. GREGG. Lancet, 1923, cciv, 941.

The surgery of gumma of the liver. E. MONSE. Beitr. z. klin. Chir., 1923, cxxviii, 148.

Actinomycosis of the liver. G. C. SEENGER. Orvosi hetil., 1923, lxxvii, 62.

Non-obstructive jaundice. R. J. M. BUCHANAN. Lancet, 1923, cciv, 900.

Acute catarrhal jaundice. H. C. MICHIE. Mil. Surgeon, 1923, lii, 390.

Arsphenamin jaundice simulating biliary duct obstruction. G. P. MULLER. Surg. Clin. N. Am., 1923, iii, 125. [246]

Two cases of acholuric jaundice. R. HUTCHISON. Proc. Roy. Soc. Med., Lond., 1923, xvi, Sect. Dis. Child., 41.

A case of acholuric jaundice. D. PATERSON. Proc. Roy. Soc. Med., Lond., 1923, xvi, Sect. Dis. Child., 41.

The possible application of the phenoltetrachlorophthalein test to obstructive jaundice. R. OTTENBURG and S. ROSEN. J. Am. M. Ass., 1923, lxxx, 1519.

The function of the gall-bladder. G. M. CRABB. J. Iowa State M. Soc., 1923, xiii, 204.

Difficulties in the diagnosis of right upper quadrant disease, with particular reference to the gall-bladder. C. F. KARSHNER. J. Michigan State M. Soc., 1923, xxii, 232.

The pathologic gall-bladder. A. W. GEORGE. Lancet, 1923, cciv, 1088.

Gall-bladder disease in childhood. E. L. KELLOGG. Ann. Surg., 1923, lxxvii, 587.

A study of the bile obtained by non-surgical biliary drainage, with especial reference to its bacteriology. G. M. PIERSOL and H. L. BOCKUS. Am. J. M. Sc., 1923, clxv, 486. [247]

Experiences with non-surgical biliary drainage (Meltzer-Lyon test). E. HOLLANDER. Am. J. M. Sc., 1923, clxv, 497. [247]

The diagnosis and treatment of gall-bladder disease. J. S. McCELVEY. Texas State J. M., 1923, xix, 24.

Nocturnal colic in biliary lithiasis and its significance. F. A. GALLINO. Semana méd., 1923, xxx, 804.

The diagnosis of gall-stones. W. F. CHENEY. Med. Clin. N. Am., 1923, vi, 1371.

Melæna with gall-stones. V. VYŠIN. Časop. lék. česk., 1923, lxii, 30. [247]

A fatal hæmorrhage from an eroded arteria cystica of the gall-bladder. R. H. JAFFE. J. Am. M. Ass., 1923, lxxx, 1364.

The surgical diagnosis and treatment of gall-stone disease. N. I. ROMONZEFF. Nowy Chir. Arch., 1922, ii, 552.

Duodenal drainage and the surgery of the gall-bladder. A. T. PRITCHARD and A. W. CALLOWAY. South. M. & S., 1923, lxxxv, 249.

The advantages and disadvantages of the open and closed method of gall-bladder extirpation. A. H. HOFMANN. Arch. f. klin. Chir., 1923, cxxiii, 31.

Indications for the removal of the gall-bladder. W. L. CROSTHWAITE. Texas State J. M., 1923, xix, 27.

Primary closure of the abdominal wall in gall-stone operations. E. HELLER. Klin. Wchnschr., 1923, ii, 632.

A new test for pancreatic efficiency; an aid to the diagnosis of gall-bladder disease and certain obscure dyspepsias. F. L. APPERLY and G. CAMERON. Med. J. Australia, 1923, i, 521.

The etiology of acute pancreatitis. W. G. WOOD. Edinburgh M. J., 1923, n.s.xxx, 201.

The differential diagnosis of diseases of the pancreas. G. E. HOLTZAPPLE. Atlantic M. J., 1923, xxvi, 523.

Pancreatic lithiasis. M. SIMMONDS. Fortschr. a. d. Geb. d. Roentgenstrahlen, 1923, xxx, 81.

The differential diagnosis of pancreolithiasis. J. L. A. PEUTZ. Deutsche med. Wchnschr., 1923, xlix, 178.

The change in the blood picture following splenectomy, a result of the beginning disturbance of internal secretion. E. L. BERESOFF. Klinitscheskaja Med., 1921, iv, 18. [247]

Experimental research upon the importance of the spleen in the production of agglutinins. A. STEFANI. Sperimendale, 1922, lxxvi, 361.

Chronic familial splenomegaly of Gaucher's type. HARVIER and LEBÉE. Bull. et mém. Soc. méd. d. hôp. de Par., 1923, 3s.xxxix, 87.

Malarial splenomegaly and its complications. O. CIGNOZZI. Policlin., Rome, 1923, xxx, sez. chir., 57.

Idiopathic hyperplasia of the splenic follicles. L. FIEDLER. Zentralbl. f. Chir., 1923, l, 385.

Observations on the surgery of the spleen. H. HERFARTH. Beitr. z. klin. Chir., 1923, cxxviii, 284.

The effect of splenectomy on the hæmopoietic system of macacus rhesus. E. B. KRUMBHAAR and J. H. MUSSER, JR. Arch. Int. Med., 1923, xxxi, 686.

Miscellaneous

Phrenic shoulder pain in disease involving the diaphragm. T. G. ORR. J. Am. M. Ass., 1923, lxxx, 1434.

Diaphragmatic hernia. A. T. MANN. Minnesota Med., 1923, vi, 285.

Diaphragmatic hernia. L. REICH. Fortschr. a. d. Geb. d. Roentgenstrahlen, 1923, xxx, 305.

The discharge of chyle into the abdominal cavity. G. GOLM. *Zentralbl. f. Chir.*, 1923, I, 300.
 The differential diagnosis of abdominal diseases. D. KULENKAMPFF. *Deutsche med. Wchnschr.*, 1923, xlix, 274, 349.
 Subphrenic abscess. M. BAUMANN. *Beitr. z. klin. Chir.*, 1923, cxxviii, 477.
 Subdiaphragmatic abscess. W. A. DOEBELE. *Hahne-man. Month.*, 1923, lviii, 286.
 Inflammatory diseases of the right upper abdomen. H. KLOSE. *Therap. d. Gegenw.*, 1923, lxiv, 48.
 Subhepatic perivisceritis. G. CASTRONUOVO. *Riforma med.*, 1923, xxxix, 445.
 The ureter versus the appendix in right-sided abdominal lesions. BAKER. *Ann. Surg.*, 1923, lxxvii, 638.
 The cause and nature of visceral pain. F. M. POTTENGER. *Chicago M. Rec.*, 1923, xlv, 653.

The surgical abdomen. G. W. SHEPHARD. *U. S. Naval M. Bull.*, 1923, xviii, 569.
 Drainage in intra-abdominal infection. A. C. WILENSKY. *Ann. Surg.*, 1923, lxxvii, 558.
 Drains and drainage of the abdominal cavity. M. L. CURTNER. *J. Indiana State M. Ass.*, 1923, xvi, 173.
 The use of glass tube drainage in the abdominal wall. F. KRUMM. *Zentralbl. f. Chir.*, 1923, I, 639.
 The significance of diarrhoea following abdominal operations. E. BEER. *Ann. Surg.*, 1923, lxxvii, 524.
 The after-treatment of abdominal operations. M. ECCLES. *Lancet*, 1923, cciv, 1059.
 Treatment after abdominal operations. M. ECCLES. *Brit. M. J.*, 1923, i, 899.
 A pillow placed at the foot of the bed after abdominal operations. T. S. CULLEN. *J. Am. M. Ass.*, 1923, lxxx, 1521.

GYNECOLOGY

Uterus

Inversion of the uterus treated by hysterectomy. J. J. W. EVANS. *Brit. M. J.*, 1923, i, 854.
 Amenorrhoea: its significance and treatment. M. K. ROBBIE. *Texas State J. M.*, 1923, xix, 30.
 Dysmenorrhoea. J. L. ROTHEROCK. *Minnesota Med.*, 1923, vi, 314.
 Metrorrhagia in diabetes. A. NAVARRO. *An. Fac. de med., Univ. de Montevideo*, 1923, viii, 171.
 A critical review of a series of mental cases operated on for removal of a focus of infection in the cervix uteri. W. LANGSTROTH, JR. *Am. Med.*, 1923, xxix, 273.
 Red degeneration of fibroids. J. M. MAURY. *Am. J. Obst. & Gynec.*, 1923, v, 519.
 The evolution of the operation for myoma of the uterus. D. VON OTT. *Am. J. Obst. & Gynec.*, 1923, v, 473.
 Inoperable carcinoma of the cervix; a report of three cases in which radiotherapy arrested the disease. S. D. NEELY. *J. Oklahoma State M. Ass.*, 1923, xvi, 113.
 The technique of the treatment of carcinoma of the cervix uteri with a combination of X-rays and radium rays. H. SCHMIDTZ. *Am. J. Roentgenol.*, 1923, x, 219. [249]
 Sarcoma of the uterus. J. C. MASSON. *Am. J. Obst. & Gynec.*, 1923, v, 345. [249]
 Sarcoma of the uterus, with a report of thirty cases. M. E. VOGT. *Am. J. Obst. & Gynec.*, 1923, v, 523.

Adnexal and Peri-Uterine Conditions

Changes in the fallopian tube during the ovulation cycle and early pregnancy. F. F. SNYDER. *Bull. Johns Hopkins Hosp., Balt.*, 1923, xxxiv, 121.
 Primary carcinoma of the fallopian tube. C. W. URSPRUNG. *Hahne-man. Month.*, 1923, lviii, 294. [250]
 Transplantation of human ovaries: present status and future possibilities. W. S. BAINBRIDGE. *Am. J. Obst. & Gynec.*, 1923, v, 493.
 A cyst of the ovary with a twisted pedicle; acute intestinal obstruction. A. J. PAVLOVSKY. *Bol. de la Soc. de obst. y ginec. de Buenos Aires*, 1923, ii, 36.
 Detachment of a dermoid-cyst of the ovary by spontaneous rupture of its pedicle. L. PIORAVANTI. *Bruxelles-med.*, 1923, iii, 665.
 A case of paratyphoid beta bacillus infection of an ovarian cyst. J. A. CORSCADEN. *Am. J. Obst. & Gynec.*, 1923, v, 545.

Reciprocal relations between appendicitis in the female and inflammation of the right adnexa. C. G. CUMSTON. *Rev. franç. de gynec. et d'obst.*, 1923, xviii, 177. [250]
 Tumors of the round ligament; report of a case. L. V. SAMS. *Colorado Med.*, 1923, xx, 135.
 Pelvic varicocele. G. COTTE and D. JEZDITCH. *Gynec. et obst.*, 1923, vii, 205. [251]

External Genitalia

Incomplete or absent vagina: reconstructive operations. A. LAMAS. *An. Fac. de med., Univ. de Montevideo*, 1923, viii, 1.
 Four cases of congenital defect of the vagina, with reconstruction from the small intestine. N. HORTOLOMEI. *Zentralbl. f. Chir.*, 1923, I, 259.
 The operative treatment of vesicovaginal fistulae. J. HALBAN. *Zentralbl. f. Gynaek.*, 1923, xlvii, 588.

Miscellaneous

Ductless gland therapy: the corpus luteum. J. L. MASTERMAN-WOOD. *Practitioner*, 1923, cx, 387.
 The vaginal pessary: its indications and limitations. E. NOVAK. *J. Am. M. Ass.*, 1923, lxxx, 1294.
 Pelvic inflammatory disease. A. F. MAXWELL. *Surg. Clin. N. Am.*, 1923, iii, 865.
 Chronic urinary disturbance in women. A. NELKEN. *N. Orleans M. & S. J.*, 1923, lxxv, 716.
 Vesico-uterine obstetrical fistulae. E. DELANNOY. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 659.
 The management of the female urinary bladder after operation and during pregnancy: a further study of residual urine in its bearing on urinary tract disturbances. A. H. CURTIS. *J. Am. M. Ass.*, 1923, lxxx, 1126. [251]
 Focal infection as applied to gynecological practice. F. L. BARNES. *Texas State J. M.*, 1923, xix, 28.
 Tuberculosis of the female generative organs. E. E. FADGETT. *J. Indiana State M. Ass.*, 1923, xvi, 157.
 The treatment of gonorrhoea in women. J. A. MCGLINN. *Therap. Gaz.*, 1923, 3s.xxxix, 229. [252]
 Adenomyoma of the female pelvic organs. A. DONALD. *Med. Press*, 1923, n.s.cvx, 395.
 An unusual type of carcinoma in a woman 29 years of age. A. STEIN. *Am. J. Obst. & Gynec.*, 1923, v, 539.
 New applications of radiotherapy in gynecology. D. S. RECASENS. *Med. Ibero*, 1923, vii, 457.

The results of radium in gynecology. A. F. MAXWELL. California State J. M., 1923, xxi, 155. [252]
Methyl chloride narcosis in gynecology and obstetrics. P. SCHUMACHER. Klin. Wchnschr., 1923, ii, 536.

Local anæsthesia in operative gynecology. R. ZIMMERMANN. Ztschr. f. Geburtsh. u. Gynaek., 1923, lxxxv, 502.
Some gynecological operations in relation to life assurance. A. E. GILES. Lancet, 1923, cciv, 885.

OBSTETRICS

Pregnancy and Its Complications

Prenatal care and treatment. R. P. KELLY. Virginia M. Month., 1923, li, 82.

The general management of pregnancy and labor. M. C. HUBBARD. J. Michigan State M. Soc., 1923, xxii, 247.

Pregnancy and labor in very young and elderly primiparae. P. F. WILLIAMS. Atlantic M. J., 1923, xxvi, 456.

The early diagnosis of pregnancy by the method of Darder Rodés. PUELLES. Españ. med., 1923, xiv, 3.

The genesis and diagnostic value of cutaneous manifestations in pregnancy. P. SFAMENTI. Riv. ital. di ginec., 1923, i, 335.

Complications of pregnancy. C. F. DUBOIS. J. Michigan State M. Soc., 1923, xxii, 244.

Spontaneous rupture of the uterus. C. M. ROLSTON. Brit. M. J., 1923, i, 855.

Renal infections in pregnancy. S. R. WOODRUFF. J. Med. Soc. N. Jersey, 1923, xx, 158.

Pyelitis in pregnancy. E. H. KLOMAN. South. M. J., 1923, xvi, 369.

Glycosuria and blycæmia in pregnancy. S. E. BERMANN. Bol. de la Soc. de obst. y ginec. de Buenos Aires, 1923, ii, 20.

The treatment of the toxæmias of pregnancy. W. A. FOWLER. Med. Herald, 1923, xlii, 130.

Hyperemesis gravidarum. D. F. CROWLEY. J. Iowa State M. Soc., 1923, xiii, 195.

A routine treatment for hyperemesis gravidarum. E. SPEIDEL. Am. J. Obst. & Gynec., 1923, v, 481. [254]

Adrenalin and the vomiting of pregnancy. N. BLASCO. Arch. de med., cirug. y especial., 1923, xi, an. de la Soc. ginec. españ., 49.

Report of a case of retinitis gravidarum with no other indications of toxæmia. J. K. QUIGLEY. Am. J. Obst. & Gynec., 1923, v, 550.

Personal experiences in the operative treatment of eclampsia. M. A. STERN. J.-Lancet, 1923, xliii, 238.

My improved method of the prophylactic treatment of eclampsia. STRAGANOFF. J. Obst. & Gynec. Brit. Emp., 1923, xxx, 1. [254]

Gonococcus arthritis in pregnancy. G. D. ROYSTON. Am. J. Obst. & Gynec., 1923, v, 512.

Nephrolithiasis and pregnancy. A. P. HEINECK. Chicago M. Rec., 1923, xlv, 671.

Fibromata complicated by pregnancy. BRINDEAU. Presse méd., Par., 1923, xxxi, 385. [255]

Extra-uterine pregnancy. F. BOTELLA MONTOYA. Arch. de med., cirug. y especial., 1923, xi, an. de la Soc. ginec. españ., 61.

A case of extra-uterine pregnancy. BOURKAIB. Arch. de med., cirug. y especial., 1923, xi, an. de la Soc. ginec. españ., 56.

A clinical study of ectopic pregnancy. L. BRADY. Bull. Johns Hopkins Hosp., Balt., 1923, xxxiv, 152. [255]

The diagnosis of tubal pregnancy, cornual pregnancy. E. DOUAY and R. ROCHAT. Gynec. et obst., 1923, vii, 216.

Twin tubal pregnancy. W. E. DARNALL. Am. J. Obst. & Gynec., 1923, v, 537.

A case of erosion of the rectum by an ectopic placenta. J. A. C. FORSYTH. Lancet, 1923, cciv, 795. [256]

Labor and Its Complications

Premature labor with dystocia in a double uterus; a modified Porro operation. E. A. BOERO. Bol. de la Soc. de obst. y ginec. de Buenos Aires, 1923, ii, 5.

The use of the Champetier de Ribes bag in the obstetrical clinic of the Rivadavia Hospital. J. E. BAZAN. Bol. de la Soc. de obst. y ginec. de Buenos Aires, 1923, ii, 11.

An improvement on the Voorhees bag. E. L. CORNELL. Surg., Gynec. & Obst., 1923, xxxvi, 718.

A critical review of fifty-three cases of rupture of the uterus following the use of hypophyseal preparations. L. POULIOT and J. TRUCHARD. Rev. franç. de gynéc. et obst., 1923, xviii, 145. [256]

A discussion of the factors influencing breech, cephalic, and transverse presentation. L. DROSIN. Internat. J. Surg., 1923, xxxvi, 205.

Dry labor. J. O. POLAK. Am. J. Gynec. & Obst., 1923, v, 488. [256]

The forceps. F. LA TORRE. Clin. ostet., 1923, xxv, 93.

A case of fatal shock secondary to parturition. J. JIMENEZ. Med. Ibero, 1923, vii, 412.

The treatment of adherent placenta—a symposium. E. P. DAVIS, J. C. EDGAR, J. W. WILLIAMS, B. C. HIRST, and others. Therap. Gaz., 1923, 38, xxxix, 305.

Intraperitoneal cesarean section. R. DE PORENTA. Riv. ital. di ginec., 1923, i, 389.

Puerperium and Its Complications

Colloid argentum in ruptured perineum. D. M. B. SNELL. Brit. M. J., 1923, i, 809.

A further report on the aspiration and pressure treatment of puerperal mammary abscesses. J. P. GARDINER. Ohio State M. J., 1923, xix, 316.

Uterine subinvolution due to abortion. F. VILLANUEVA. Siglo méd., 1923, lxx, 145.

Mechanical ileus during the puerperium. W. MOELLER. Monatsschr. f. Geburtsh. u. Gynaek., 1922, lix, 273. [257]

Report of two cases of obstetrical sepsis. G. L. BROADHEAD. Am. J. Obst. & Gynec., 1923, v, 548.

The treatment of puerperal infections, with a discussion. B. P. WATSON. Brit. M. J., 1923, i, 505, 511. [257]

The use of continuous drip irrigation in puerperal fever. A. WAGNER. Deutsche med. Wchnschr., 1922, xlviii, 1577. [258]

Puerperal infection; ligature or excision of veins. A. J. NYULASY. Med. J. Australia, 1923, i, 499. [258]

The treatment of puerperal infections. B. P. WATSON. Edinburgh M. J., 1923, n.s.xxx, Sect. Edinb. Obst. Soc., 68.

On the surgical treatment of certain puerperal infections. J. F. BALDWIN. Am. J. Obst. & Gynec., 1923, v, 499. [258]

The after-care of obstetrical patients. C. J. ANDREWS. Virginia M. Month., 1923, li, 122.

Newborn

A note regarding a new use of oxygen therapy. G. S. DAVIDSON. Edinburgh M. J., 1923, n.s.xxx, Tr. Edinb. Obst. Soc., 65.

The effects of irradiation on fetal development. H. BAILEY and H. J. BAGG. *Am. J. Obst. & Gynec.*, 1923, v, 461. [259]

Bleeding and coagulation in the first week of life. D. H. SHERMAN and H. R. LOHNES. *N. York State J. M.*, 1923, xxiii, 146. [260]

The hæmorrhages of the newborn. J. N. CRUICKSHANK. *Lancet*, 1923, cciv, 836.

Blood transfusion by the citrate method in hæmorrhages of the newborn. F. H. FALLS. *J. Am. M. Ass.*, 1923, lxxx, 678. [260]

Postmortem findings in the newborn. H. C. McDOWELL. *N. York State J. M.*, 1923, xxiii, 143. [260]

Miscellaneous

Obstetrics a neglected science and art. G. T. MYERS. *Virginia M. Month.*, 1923, li, 86.

The value of ergot in obstetrical and gynecological practice; with special reference to its present position in the British pharmacopœia. H. H. DALE. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Obst. & Gynec., 1. [261]

GENITO-URINARY SURGERY

Adrenal, Kidney, and Ureter

A case of adrenal hæmorrhage. J. MICHAUX and H. MARSET. *Bull. et mém. Soc. méd. d. hôp. de Par.*, 1923, 3s.xxxix, 161.

A case of acute bilateral suprarenal hæmorrhage. A. G. M. SEVERN. *Lancet*, 1923, cciv, 646. [262]

Suprarenal asthenia. A. P. ORTIZ. *Arch. de med., cirug. y especial.*, 1923, xi, 205.

Adrenal insufficiency. E. SERGENT. *Presse méd.*, Par., 1923, xxxi, 429.

Nephroptosis: its causation, symptoms, and radical cure. J. J. BELL. *Brit. M. J.*, 1923, i, 889.

Anomalies of the kidney and their clinical significance. I. PROMPTOFF. *Mediz. Fak.*, 1922, i, 231.

Double kidney. D. N. EISENDRAH. *Ann. Surg.*, 1923, lxxvii, 450, 531.

Absent right kidney; deformity of the left ureter. W. G. BALL. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Urol., 35.

The production of kidney lesions in rats by diets defective only in that they contained excessive amounts of proteins. L. M. POLVOGT. *Bull. Johns Hopkins Hosp.*, Balt., 1923, xxxiv, 168.

Renal efficiency tests. M. G. SUTTON. *Med. J. Australia*, 1923, i, 574.

The technique of the determination of renal function. G. DIENA. *Policlin.*, Rome, 1923, xxx, sez. med., 256.

Remarks on pyelography. J. THOMSON-WALKER. *Arch. Radiol. & Electrotherapy*, 1923, xxvii, 334. [262]

Pyelography: common diagnostic errors. M. B. WES-SON. *California State J. M.*, 1923, xxi, 193.

The importance of pyelography in recognizing the causes of obscure abdominal symptoms. R. F. O'NEIL. *Boston M. & S. J.*, 1923, clxxxviii, 671. [263]

Our experience with pneumoradiography of the kidney. A. MOSENTHAL. *Ztschr. f. urol. Chir.*, 1923, xii, 303.

The silent kidney. J. D. BARNEY. *Boston M. & S. J.*, 1923, clxxxviii, 665.

The formation of cysts of the kidney. E. HOLLANDER. *Ztschr. f. urol. Chir.*, 1923, xii, 202.

Serous cyst of the kidney. K. M. WALKER. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Urol., 45.

Multiple cystic formation in the lower pole of the kidney. R. H. J. SWAN. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Urol., 41.

Hydronephrosis due to abnormal blood vessels. R. BAUDET and L. BAZY. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 616.

Hydronephrosis caused by abnormal blood vessels. P. BAZY. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 593.

Hydronephrosis from developmental anomalies and constriction of the ureter. W. TINNEMEYER. *Ztschr. f. urol. Chir.*, 1923, xii, 50.

Experimental hydronephrosis: the failure of diuresis to affect its rate of development. F. HINMAN and A. E. BELT. *J. Urol.*, 1923, ix, 397.

Partial pyelonephritis in a kidney with two ureters. GUYOT and JEANNENEY. *J. d'urol. med. et chir.*, 1923, xiv, 37.

Suppurative pyelitis: nephrectomy, cure. V. C. PEDERSEN. *Med. Times*, 1923, li, 113.

Pyonephrosis due to the kinking of the ureter by aberrant renal vessels. R. H. J. SWAN. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Urol., 41.

Streptococcic nephritis in an infant secondary to erysipelas of vaccinal origin cured by vaccine therapy and blood transfusion. P. PECKER and J. P. LAMARE. *Bruxelles-med.*, 1923, iii, 664.

A case of chronic parenchymatous nephritis treated by decapsulation of the kidneys. J. H. SPENCER and J. M. WEDDELL. *J. Roy. Army Med. Corps*, Lond., 1923, xl, 362.

A possible mistake in the diagnosis of gonococcal infection of the kidney, with the report of a suspected case. C. H. DE T. SHIVERS. *J. Am. M. Ass.*, 1923, lxxx, 1359.

On the passage of the staphylococcus aureus through the kidney of the rabbit. S. C. DYKE. *J. Path. & Bacteriol.*, 1923, xxvi, 164. [263]

The technique of enlarged pyelotomy for renal calculi. D. N. EISENDRAH. *Surg., Gynec. & Obst.*, 1923, xxxvi, 715.

A large renal calculus. R. O. WARD. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Urol., 38.

Renal function following nephrotomy. J. A. H. MAGOUN, JR. *Surg., Gynec. & Obst.*, 1923, xxxvi, 675. [264]

A specimen showing transitional-celled growth of the kidney. W. G. BALL. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Urol., 35.

Specimens of new growth of the pelvis and kidney. J. McALPINE. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Urol., 37.

Necrosis of the kidney following ligature of abnormal renal vessels. W. G. BALL. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Urol., 34.

Fistula following nephrectomy for tuberculosis. W. MEYER. *Ann. Surg.*, 1923, lxxvii, 629.

Reduplication of the ureter. J. F. GEISINGER. *Ann. Surg.*, 1923, lxxvii, 563.

Ureterocele. S. P. FEDOROFF. *Nowy Chir. Arch.*, 1922, ii, 426.

Kinks of the ureter due to aberrant vessels. A. H. CROSBIE. *Boston M. & S. J.*, 1923, clxxxviii, 678. [264]

Knotting of the ureter. H. MICHAEL. *Zentralbl. f. Gynaek.*, 1923, xlvii, 591.

Stone in the ureter. H. L. KRETSCHMER. *J. Am. M. Ass.*, 1923, lxxx, 1425.

The diagnosis and treatment of ureteral calculi. G. J. THOMAS. *Minnesota Med.*, 1923, vi, 226. [265]

The surgical treatment of the ureter in tuberculosis of the kidney. W. WALTERS. *Minnesota Med.*, 1923, vi, 307. [265]

Bladder, Urethra, and Penis

Some cases of suppurative pericystitis. A. L. CHUTE. *J. Urol.*, 1923, ix, 421.

Perivesical and pelvic cellulitis after certain cystostomies or suprapubic prostatectomies. LEGUEU and ROCHET. *J. d'uro. méd. et chir.*, 1923, xiv, 1. [265]

Rupture of the bladder. A. GROVES. *Canadian M. Ass. J.*, 1923, xiii, 319.

Cystoscopy and the general practitioner. F. F. HESS. *Illinois M. J.*, 1923, xliii, 372.

Bladder diverticula. V. BLUM. *Ztschr. f. urol. Chir.*, 1923, xii, 290.

The diagnosis and treatment of bladder diverticula. H. ROSENBERG. *Ztschr. f. urol. Chir.*, 1923, xii, 449.

A case of diverticulum of the bladder in the inguinal canal. H. E. STEIN. *Med. Press*, 1923, n.s.cxxv, 378.

Diverticula of the bladder in children. A. HYMAN. *J. Urol.*, 1923, ix, 431. [266]

A specimen of diverticulum of the bladder. J. EVERIDGE. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Urol., 43.

A case of malakoplakia. J. THOMSON-WALKER and F. J. F. BARRINGTON. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Urol., 32.

Tuberculosis in an "hourglass bladder" (diverticulum). DUVERGEY and DAX. *J. de méd. de Bordeaux*, 1923, xcv, 328.

Alkaline incrustations of the bladder: with the report of a case treated with Bulgarian bacilli. W. M. COPPRIDGE. *South. M. & S.*, 1923, lxxxv, 255.

Cystoscopic lithotripsy. C. W. BETHUNE. *Am. J. Surg.*, 1923, xxxvii, 100.

Ten bladder tumors. A. K. BATES. *Clifton Med. Bull.*, 1923, ix, 37.

Fibroids of the urinary bladder, with the report of a case. I. S. KOLL. *J. Urol.*, 1923, ix, 453.

A specimen showing the interior of the bladder six months after extensive resection for carcinoma with transplantation of the right ureter. J. EVERIDGE. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Urol., 43.

A method for the introduction of radium needles into tumors of the bladder. J. H. CUNNINGHAM. *Boston M. & S. J.*, 1923, clxxxviii, 816.

A consideration of procedure in the surgery of the bladder. J. F. MCCARTHY. *J. Urol.*, 1923, ix, 461.

A new approach to the urinary bladder. K. MERMINGAS. *Zentralbl. f. Chir.*, 1923, l, 558.

Congenital diverticula of the urethra. M. G. RAMM. *Medizinskaia Myssl*, 1922, 306, 363.

Two cases of urethroplasty. I. DEUTSCH. *Ztschr. f. urol. Chir.*, 1923, xii, 47.

Primary carcinoma of the urethra. H. CULVER and N. K. FORSTER. *Surg., Gynec. & Obst.*, 1923, xxxvi, 473. [267]

Primary carcinoma of the male urethra. H. L. KRETSCHMER. *Arch. Surg.*, 1923, vi, 830.

Resection of the urethra with mobilization and suture in cicatricial strictures and fistulae. N. N. PETROW. *Wratschebnaja Gaz.*, 1922, ix, 210.

A congenital epithelial cyst of the prepuce. G. ROELLO. *Policlin.*, Rome, 1923, xxx, sez. chir., 220.

Two cases of glandular epispadias. J. S. JOLY. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Urol., 39.

A modification of the operation of Bucknall for hypospadias. S. C. HARVEY. *Ann. Surg.*, 1923, lxxvii, 572.

Genital Organs

A consideration of the non-venereal infected prostate. W. T. WOOTTON. *J. Arkansas M. Soc.*, 1923, xix, 223.

A case of cyst of the prostate. J. THOMSON-WALKER. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Urol., 31.

Renal insufficiency in prostatic hypertrophy. G. DUETTSMANN. *Beitr. z. klin. Chir.*, 1923, cxxviii, 79.

The operability of prostatic obstruction. J. D. BARNEY. *Boston M. & S. J.*, 1923, clxxxviii, 755.

Vasectomy as a method of treatment of prostatic hypertrophy. H. LANDAU. *Klin. Wchnschr.*, 1923, ii, 255. [267]

A case of aberrant prostatic nodule. J. THOMSON-WALKER. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Urol., 32.

Primary carcinoma of the prostate with extensive glandular enlargement and pain along the course of the sciatic nerve. J. F. HASZARD. *Canadian M. Ass. J.*, 1923, xiii, 353.

Primary lymphosarcoma of the prostate. D. SYMMERS. *Arch. Surg.*, 1923, vi, 755.

Surgery of the prostate. T. E. HAMMOND. *Lancet*, 1923, cciv, 901. *Brit. M. J.*, 1923, i, 721.

The paramount problem in prostatectomy. A. L. CHUTE. *Boston M. & S. J.*, 1923, clxxxviii, 669.

An address on some problems of prostatectomy. J. THOMSON-WALKER. *Brit. M. J.*, 1923, i, 133.

Prostatectomy: pre-operative, operative, and postoperative treatment. H. H. YOUNG. *Surg., Gynec. & Obst.*, 1923, xxxvi, 589. [267]

One hundred consecutive cases of prostatectomy. O. LYONS. *Colorado Med.*, 1923, xx, 127.

Suprapubic prostatectomy in two stages; its application and its fallacies. W. M. SPITZER. *Colorado Med.*, 1923, xx, 124.

Prostatectomy. M. L. BOYD. *South. M. J.*, 1923, xvi, 385.

Some disputed points in suprapubic prostatectomy. G. R. LIVERMORE. *South. M. J.*, 1923, xvi, 389.

Discussion on prostatectomy. H. W. E. WALTHER, H. W. MCKAY, A. NELKEN, and others. *South. M. J.*, 1923, xvi, 392.

Prostate removed by prostatectomy: weight 12 oz. or 340 gm. R. H. J. SWAN. *Proc. Roy. Soc. Med.*, Lond., 1923, Sect. Urol., 42.

The content of the seminal vesicles in relation to other autopsy findings. E. BRACH. *Ztschr. f. urol. Chir.*, 1923, xii, 403.

Gonorrhoeal vesiculitis and its importance in the progress of gonorrhoea. H. JUNKER. *Med. Klin.*, 1923, xix, 233.

X-ray castration in man. E. MARKOVITS. *Muenchen. med. Wchnschr.*, 1923, lxx, 457.

Hydrocele in infants: report of certain forms with hereditary lues. VALLERY-RADOT and SALÈS. *Presse méd.*, Par., 1923, xxxi, 420.

The development of non-gonorrhoeal epididymitis. V. WINCKLER. *Zentralbl. f. Chir.*, 1923, l, 89.

A case of myosarcoma of the epididymis. J. THOMSON-WALKER. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Urol., 31.

A case of ectopic testis. A. C. MORSON. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Urol., 43.

Operation for cryptorchidism. E. KUBÁNYI. *Gyógyászat*, 1923, 28.

Changes in the testis caused by disturbances of the local circulation. K. KOYANO. *Acta scholæ med. univ. imp.*, Kioto, 1923, v, 275.

Tumors of the testes. C. W. JEFFERSON. *Am. J. Surg.*, 1923, xxxvii, 112.

Malignant tumor of the testis; orchidectomy; Coley's fluid injection; cure: a case report. W. M. BRICKNER. *Am. J. Surg.*, 1923, xxxvii, 116.

Miscellaneous

- Urologic problems and diagnosis. R. P. KILE. *Illinois M. J.*, 1923, xliii, 378.
 Urotropin is not a diuretic. B. SAAD. *Presse méd.*, Par., 1923, xxxi, 577.
 The relation of roentgenology to urology. J. R. CAULK. *J. Radiol.*, 1923, iv, 153.
 Surgical diseases of the urinary organs: early recognition. W. DOWNING. *J. Iowa State M. Soc.*, 1923, xiii, 201.
 A plea for the early diagnosis of tuberculosis of the urogenital tract. R. L. DOORMASHKIN. *Med. Times*, 1923, li, 117.

- Observations on the surgery of the genito-urinary system. H. RIESE. *Ztschr. f. urol. Chir.*, 1923, xii, 334.
 Menstrual and hypertonic hæmaturia. H. STRAUSS. *Ztschr. f. urol. Chir.*, 1923, xii, 84.
 Hæmoglobinuria in hæmolytic jaundice. H. Z. GIFFIN. *Arch. Int. Med.*, 1923, xxxi, 573. [270]
 A preliminary note on the value of intravenous injections of acriflavine in the treatment of gonorrhœa. G. H. WOOD. *J. Roy. Army Med. Corps, Lond.*, 1923, xl, 367.
 Two large calculi removed from the perineum of a male aged 62 in Margate Cottage Hospital. W. G. SUTCLIFFE and C. NITCH. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Urol., 36.

SURGERY OF THE BONES, JOINTS, MUSCLES, TENDONS

Conditions of the Bones, Joints, Muscles, Tendons, Etc.

- Congenital malformations of the extremities in an infant and its mother. C. LEPOUTRE. *Rev. d'orthop.*, 1923, xxx, 237.
 Diseases of the epiphyses in youth. O. HEITZMANN and H. ENGEL. *Klin. Wchnschr.*, 1923, ii, 397, 444.
 Unusual bone changes in partial gigantism. H. HOLTHUSEN and L. KOPPEL. *Fortschr. a. d. Geb. d. Roentgenstrahlen*, 1923, xxx, 59.
 Cystic disease of the bones: a study of fifteen cases. A. P. C. ASHURST, R. S. BROMER, and C. Y. WHITE. *Arch. Surg.*, 1923, vi, 661.
 Rickets and the lower limbs. C. L. GARCIA. *Semana méd.*, 1923, xxx, 789.
 The treatment of acute infectious osteomyelitis by transfusion with immunized blood. M. J. SYNNOTT, J. O'DWYER, and F. D. SCUDDER. *Am. J. Surg.*, 1923, xxxvii, 118.
 Problems of acute osteomyelitis. N. G. SUTTON. *Med. J. Australia*, 1923, i, 517.
 Paget's disease (osteitis deformans): report of four cases. S. A. MUNFORD. *Clifton Med. Bull.*, 1923, ix, 30.
 Trauma and tuberculosis of bones and joints. F. ZOLLINGER. *Schweiz. med. Wchnschr.*, 1922, lii, 1105, 1126, 1154. [271]
 The differences in the X-ray picture between exudative and productive tuberculosis of bone and their value as a surgical indication. M. FLESCHE-THIBESIU. *Fortschr. a. d. Geb. d. Roentgenstrahlen*, 1923, xxx, 249.
 Heliotherapy for tuberculosis of bones and joints. A. B. GILL. *Ann. Surg.*, 1923, lxxvii, 620.
 The results of staphylococcus infection of bone. W. MARTIN. *Surg. Clin. N. Am.*, 1923, iii, 409.
 Hypertrophic osteo-arthritis. L. FIRGAU. *Fortschr. a. d. Geb. d. Roentgenstrahlen*, 1923, xxx, 506.
 Spongy exostosis of the long bones. G. H. EDINGTON. *Glasgow M. J.*, 1923, n.s.xvii, 273.
 Benign giant-cell tumor of bone: its diagnosis and conservative treatment. J. C. BLOODGOOD. *Am. J. Surg.*, 1923, xxxvii, 105.
 The diagnosis of sarcoma in bone. E. H. EISING. *J. Am. M. Ass.*, 1923, lxxx, 1429.
 A case of muscular dystrophy. P. W. O'BRIEN. *Med. Press*, 1923, n.s.cvx, 357.
 Angiomata of the muscles. H. MONDOR and P. HUET. *J. de chir.*, 1923, xxi, 423.
 Myositis ossificans. D. LEWIS. *J. Am. M. Ass.*, 1923, lxxx, 1281. [271]
 A case of arthritis due to dental sepsis diagnosed and treated as tuberculous. R. C. ELMSLIE. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Orthop., 28.

- Subcutaneous tearing of tendons. J. H. DRIELSMAN. *Nederl. Tijdschr. v. Geneesk.*, 1922, lxxvi, 2417.
 Tendon regeneration. E. WEHNER. *Deutsche Ztschr. f. Chir.*, 1923, clxxvii, 169.
 Acute infections of the tendon sheaths. G. VIDFELT. *Ztschr. f. orthop. Chir.*, 1922, xliii, 105.
 Congenital elevation of the scapulæ. A. L. FISHER. *California State J. M.*, 1923, xxi, 203.
 Volkmann's ischæmic contracture. J. M. JORGE. *Semana méd.*, 1923, xxx, 833.
 Traumatic disturbance of nutrition of the os lunatum. E. SAUPE. *Beitr. z. klin. Chir.*, 1923, cxxviii, 187.
 Chronic traumatic œdema of the dorsum of the hand and foot. L. CADENBACH. *Deutsche Ztschr. f. Chir.*, 1923, clxxvii, 283.
 An unusual form of syndactyly. H. A. T. FAIRBANK. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Orthop., 29.
 Hereditary polydactylism. L. R. GROTE. *Ztschr. f. Konstitutionsl.*, 1923, ix, 47.
 The causes of error in the radiologic examination of the vertebral column, and methods of avoiding them. F. SARACENI. *Policlin.*, Rome, 1923, xxx, sez. prat., 585.
 The causes of error in the roentgenological examination of the vertebral column, and methods of avoiding them. F. SARACENI. *Policlin.*, Rome, 1923, xxx, sez. prat. 585.
 Spina bifida. A. M. POPOFF and A. KOROBOW. *Med. Fakult.*, 1922, i, 221.
 Chronic arthritis, with particular reference to chronic arthritis of the small joints of the spine. R. PROEBSTER. *Arch. f. orthop. u. Unfall-Chir.*, 1923, xxi, 346.
 Acute osteomyelitis of the vertebrae. A. WAGNER. *Deutsche med. Wchnschr.*, 1923, xlix, 181. [272]
 Painful "lumbarization" of the first portion of the sacrum. LERI and LUCON. *Bull. et mém. Soc. méd. d. hôp. de Par.*, 1923, 3s.xxxix, 331.
 Sacrococcygeal chordoma. E. F. HIRSCH and M. INGALS. *J. Am. M. Ass.*, 1923, lxxx, 1369.
 Old and new facts concerning ossification of the pelvis. H. R. SCHINZ. *Fortschr. a. d. Geb. d. Roentgenstrahlen*, 1923, xxx, 66.
 Osteomyelitis of the crest of the pubic bone. A. B. KEYES. *J. Am. M. Ass.*, 1923, lxxx, 1451.
 Arthritis of the hip with flattening and fragmentation of the femoral head. A. BROCA and R. MASSART. *Rev. de chir.*, 1923, xlii, 169.
 Abortive type of tuberculous hip joint disease. A. L. NIELSON. *J. Am. M. Ass.*, 1923, lxxx, 1442.
 Tuberculous disease of the hip joint. C. P. B. CLUBBE. *Med. J. Australia*, 1923, i, 524.
 Legg-Calve-Perthes' disease. F. MINAR. *Liječ. vjesnik*, 1923, xlv, 32.

Internal derangements of the knee joint. J. DUNLOP. U. S. Naval M. Bull., 1923, xviii, 575.

Internal derangements of the knee joint: a new method of exposure. A. G. T. FISHER. Lancet, 1923, cciv, 945.

A case of hæmophilic arthritis of the knee. R. C. ELMS-LIE. Proc. Roy. Soc. Med., Lond., 1923, xvi, Sect. Orthop., 27.

An apparently hitherto unknown disease of the patella. S. JOHANSSON. Ztschr. f. orthop. Chir., 1922, xliii, 82.

Dessicating osteochondritis of the knee. J. MOREAU. Arch. franco-belges de chir., 1923, xxvi, 131. [272]

Parasynovial tuberculoma of the knee. X. DELORE and J. DUNET. Presse méd., Par., 1923, xxxi, 408.

Innervation of the ligamentum patellæ prop. L. SCHANGINA. Mediz. Fakult., 1922, i, 201.

Hallux valgus and the form of the foot resulting from it. T. SANDELIN. Finska læk.-sællsk. handl., 1922, lxiv, 543.

The technique of management of flat-foot. F. SCHEDE. Arch. f. orthop. u. Unfall-Chir., 1923, xxi, 473.

Two cases of Koehler's disease. P. B. ROTH. Proc. Roy. Soc. Med., Lond., 1923, xvi, Sect. Orthop., 28.

A case of Koehler's disease in the os navicularis tarsi. H. E. HANSSON. Hygiea, Stockholm, 1922, lxxxiv, 498.

Surgery of the Bones, Joints, Muscles, Tendons, Etc.

A table for bone surgery: a radio-orthopedic table. E. SORREL. Presse méd., Par., 1923, xxxi, suppl., 728.

The late results of arthrodesis by Cramer's method, and a contribution to the study of bone transplantation. W. LASKER. Beitr. z. klin. Chir., 1923, cxxviii, 499.

The treatment of congenital pseudarthrosis with an osteoperiosteal graft. C. DUJARIER and M. PERRIN. J. de chir., 1923, xxi, 401.

Traumatic osteo-arthritis of the neck treated by bone graft. D. M. AITKEN. Proc. Roy. Soc. Med., Lond., 1923, xvi, Sect. Orthop., 30.

Bone transplantation. U. MONACO. Policlin., Rome, 1923, xxx, sez. chir., 203.

The surgical treatment of tuberculous disease of the shoulder joint. E. D. AHERN. Med. J. Australia, 1923, i, 515.

A case of congenital subluxation of the humeri. W. GRIPPER. Proc. Roy. Soc. Med., Lond., 1923, xvi, Sect. Orthop., 30.

Essential urinary incontinence due to spina bifida occulta; recovery following operation. P. DELBET and A. LERI. Bull. et mém. Soc. méd. d. hôp. de Par., 1923, 3s. xxxix, 105.

Orthopedic treatment of tuberculous coxitis. A. KECK. Ztschr. f. orthop. Chir., 1922, xliii, 50. [272]

Arthrodesis of the ankle. T. R. DE MATA. Rev. españ. de cirug., 1922, iv, 494.

A tendon suture which permits immediate motion. F. H. LAHEY. Boston M. & S. J., 1923, clxxxviii, 851.

Fractures and Dislocations

Para-articular fractures. A. SAN MARTÍN. Semana méd., 1923, xxx, 927.

The use of the Lane bone plate. A. W. RALLS. South. M. J., 1923, xvi, 375.

Conservative early treatment of recent simple fractures of long bones. G. T. THOMPSON. J.-Lancet, 1923, xliii, 245.

The treatment of old, ununited fractures of long bones, with special reference to the use of the osteoperiosteal graft. H. B. THOMAS. J. Am. M. Ass., 1923, lxxx, 309. [272]

The application of sunken metal rings in fractures. SCHLEISNER. Ugeskr. f. Læger, 1923, lxxxv, 91.

The behavior of bone with reference to the mechanical action of metallic anchorage. L. G. GAZZOTTI. Ann. ital. di chir., 1923, ii, 16.

The influence of the X-ray on the healing of fractures. H. TAMMANN. Beitr. z. klin. Chir., 1923, cxxviii, 536.

Studies on the calcification of callus. E. P. LEHMAN. Arch. Surg., 1923, vi, 784.

The treatment of the clavicle fractured by indirect violence. F. ROMER. Lancet, 1923, cciv, 889. [273]

Spontaneous luxation of both shoulders. RENAUD and ROLLAND. Bull. et mém. Soc. méd. d. hôp. de Par., 1923, 3s. xxxix, 358.

Fractures of the scapula. E. BLOCH. N. Orleans M. & S. J., 1923, lxxv, 704.

The treatment of peri-articular fractures of the proximal end of the humerus. L. RITTER. Deutsche Ztschr. f. Chir., 1923, clxxvii, 245.

The late result of a beef-bone graft of the humerus. M. HEATH. Proc. Roy. Soc. Med., Lond., 1923, xvi, Sect. Orthop., 30.

Permanent deformities after supracondylar fractures of the humerus. H. KAELIN. Deutsche Ztschr. f. Chir., 1922, clxxv, 45.

Anterior dislocation at the elbow joint. F. J. TEES. Ann. Surg., 1923, lxxvii, 612.

Fractures of the coronoid process of the ulna. H. ABRAHAMSEN. Ugeskr. f. Læger, 1923, lxxxv, 89.

Fracture of the lower end of the radius; reduction on the fifth day by external manipulation. C. DUJARIER. Bull. et mém. Soc. de chir. de Par., 1923, xlix, 606.

Mobilization of the metacarpus. SCHIPATSCHEW. Mediz. Fakult., 1922, i, 69.

Two cases of carpal luxation, one complicated by fracture. D. PRAT. An. Fac. de med., Univ. de Montevideo, 1922, vii, 600.

Fractures of the carpal bones and the formation of defects in the X-ray picture. M. KAPPIS. Arch. f. orthop. u. Unfall-Chir., 1923, xxi, 317.

Recurrent subluxation of the hip of traumatic origin. A. V. MEEHAN. Med. J. Australia, 1923, i, 529.

The end-results of the non-operative treatment of congenital luxation of the hip. SILBERSTEIN. Verhandl. d. Ges. f. Chir., Moscow, 1922. [274]

Late results of reduction of congenital dislocation of the hip. E. E. ANDERSEN. Bibliot. f. Læger, 1922, cxiv, 401.

A preliminary report of a new method of treating fractures of the neck of the femur. E. D. MARTIN and A. C. KNIGHT. N. Orleans M. & S. J., 1923, lxxv, 710.

Two cases of fractured neck of the femur in training-ship boys. W. T. G. PUGH. Proc. Roy. Soc. Med., Lond., 1923, xvi, Sect. Orthop., 31.

Luxation of the patella. N. MIKULI. Wratschebnoje Djeło, 1922, v, 72.

Spiral fracture of the tibia with telescoping of the upper end of the fibula. C. DUJARIER. Bull. et mém. Soc. de chir. de Par., 1923, xlix, 606.

Malleolar fracture (540 cases), as reported in the Suisse Accident Insurance Institution during 1919 and 1920. H. W. TRUTMANN. Rev. suisse des accid. du travail, 1923, xvii, 1, 25.

Congenital luxation of the tendons of the lateral peroneal muscles. E. ESTOR and A. AIMES. Rev. d'orthop., 1923, xxx, 5. [274]

An operation for the relief of disability in old fractures of the os calcis. P. B. MAGNUSON. J. Am. M. Ass., 1923, lxxx, 1511.

The open treatment of fractures of the calcaneum. E. BECKER. Zentralbl. f. Chir., 1923, l, 262.

Isolated luxation of the cuboid. M. LARGET. Bull. et mém. Soc. de chir. de Par., 1923, xlix, 650.

Orthopedics in General

Twentieth report of progress in orthopedic surgery. R. B. OSGOOD, R. SOUTTER, H. C. LOW, M. S. DANFORTH, and others. *Arch. Surg.*, 1923, vi, 858.

Managing orthopedic cases. M. CONSTANTINE and B. W. MOFFAT. *Trained Nurse & Hosp. Rev.*, 1923, lxx, 405.

Syphilis in orthopedic surgery. A. O'REILLY. *J. Missouri State M. Ass.*, 1923, xx, 166.

The surgical treatment of World War veterans for disabilities at the National Military Hospital, Dayton, Ohio. D. FISHER. *Ohio State M. J.*, 1923, xix, 309.

Low back pain. R. W. BILLINGTON. *South. M. J.* 1923, xvi, 478.

The sites of election for amputation of the lower limbs. ZUR VERTH. *Muenchen. med. Wchnschr.*, 1923, lxx, 298.

Considerations on the technique of amputation in its relations to prothesis. F. DUGUET. *Rev. d'orthop.*, 1923, xxx, 253.

Amputation stumps and equipment with artificial limbs. REINER. *Arch. f. klin. Chir.*, 1922, cxxi, 271.

A rocking-shoe. P. P. GROSSO. *J. Am. M. Ass.*, 1923, lxxx, 1313.

SURGERY OF THE BLOOD AND LYMPH SYSTEMS

Blood Vessels

Pain sensibility of blood vessels and vascular reflexes. W. ODERMATT. *Beitr. z. klin. Chir.*, 1922, cxxvii, 1. [275]

Studies on the anatomy of the capillaries. I. The contractile elements of the vascular wall of the blood capillaries. B. VIMTRUP. *Bibliot. f. Læger*, 1922, cxiv, 416. [275]

Studies in the permeability of the capillary walls. MASING and DENECKE. *Verhandl. d. deutsch. Gesellsch. f. inn. Med.*, 1922, 426.

Clinical studies of the capillaries in blood diseases and circulatory disturbances. E. HISINGER-JAEGERSKIOELD. *Acta med. Scand.*, 1923, lviii, 231.

Inundation of the lesser circulation with metallic mercury. P. ESAU. *Zentralbl. f. Chir.*, 1923, 1, 388.

A case of peri-arteritis nodosa accidentally recognized during life. E. R. CARLING and J. A. B. HICKS. *Lancet*, 1923, cciv, 1001.

The filling of large pseudo-aneurismal sacs with pedicled muscle flaps. S. N. AMBRUMJANZ. *Nowy Chir. Arch.*, 1922, vi, 317.

The fate of traumatic aneurism not operated upon. W. E. SALISCHTSCHIEFF. *Nowy Chir. Arch.*, 1922, ii, 501.

Pharyngeal aneurism of the internal carotid. G. PORTMANN and P. DUPOUY. *Arch. méd. belges*, 1923, lxxvi, 97. [275]

The radial pulse in intrathoracic aneurisms. C. O. HAWTHORNE. *Brit. M. J.*, 1923, i, 892.

Aneurism of the thoracic aorta as a cause of acute abdominal pain: report of a case. W. J. MALLORY. *J. Am. M. Ass.*, 1923, lxxx, 1356.

Traumatic rupture of the aorta. P. R. KEMP. *Lancet*, 1923, cciv, 953.

Aneurismal compression of the superior vena cava: the two types of caval compression—oedematous and phlebitic. CHIREY and LEBON. *Bull. et mém. Soc. méd. d. hôp. de Par.*, 1923, 38, xxxix, 449.

Vena caval thrombosis following typhoid fever; report of a case with autopsy. S. F. SERVICE. *Clifton Med. Bull.*, 1923, ix, 26.

Aneurism of the abdominal aorta as a basis for delusions, with some other unusual features. R. F. JARRETT and J. BOSTOCK. *Med. J. Australia*, 1923, i, 498.

Ligation of the common iliac with a fascial strip for aneurism. J. DOUGLAS. *Ann. Surg.*, 1923, lxxvii, 630.

Thrombosis of the mesenteric artery. A. CAWADIAS and J. CATSARAS. *Lancet*, 1923, cciv, 949. [276]

Mesenteric thrombosis—report of a case with recovery. C. M. JOHNSON. *Illinois M. J.*, 1923, xliii, 400.

Suppurative phlebitis of the mesenteric veins as a complication of suppurative cholecystitis. I. I. GREKOW. *Festschr. z. Prof. Netschaeff's 50jaehr. Dokt.-Jubil.*, 1922, ii, 261.

The blood supply of the arteries of the limbs. P. N. OSTROGORSKIJ. *Dissertation: Petrograd*, 1922.

The operative treatment of embolism of the large arteries: a report of two cases. L. BUEGER. *Surg., Gynec. & Obst.*, 1923, xxxvi, 463. [277]

Varices and phlebitis of the lower extremities. K. BUEDINGER. *Med. Klin.*, 1923, xix, 333.

The importance of the knowledge of thrombo-angiitis obliterans to the southern physician. S. J. SINKOE. *J. Med. Ass. Georgia*, 1923, xii, 188.

Embolic gangrene of the forearm and hand. J. G. SHERRILL. *Kentucky M. J.*, 1923, xxi, 240.

Blood and Transfusion

Clinical studies in the rapidity of sedimentation of the red blood cells, with some remarks upon its dependence upon the breaking up of albumin. H. PRIBRAM and O. KLEIN. *Acta med. Scand.*, 1923, lviii, 132.

Non-coagulability and protein therapy in hæmorrhagic syndromes. R. BÉNARD. *Bull. et mém. Soc. méd., d. hôp. de Par.*, 1923, 38, xxxix, 369.

The inherited and constitutional pathology of hæmophilia. K. H. BAUER. *Deutsche Ztschr. f. Chir.*, 1922, clxxvi, 109.

Recovery from hæmophilia after operation for ruptured appendix. P. L. HIPSLEY. *Med. J. Australia*, 1923, i, 584.

On the existence of more than four iso-agglutinin groups in human blood. III. C. G. GUTHRIE, and J. G. HUCK. *Bull. Johns Hopkins Hosp., Balt.*, 1923, xxxiv, 128.

On the inheritance of the specific iso-agglutinable substances of human red cells; with a note on the possible existence of a lethal factor. S. C. DYKE, D. P. H. OXON, and C. H. BUDGE. *Proc. Roy. Soc. Med., Lond.*, 1923, xvi, Sect. Path., 35.

Blood transfusion in general practice. F. DE ROM. *Vlaamse geneesk. Tijdschr.*, 1923, iv, 91.

The transfusion of blood from immunized donors. L. J. UNGER. *Laryngoscope*, 1923, xxxiii, 145. [277]

Blood transfusion. E. F. SKINNER. *Brit. M. J.*, 1923, i, 750.

Hæmostasis induced by blood transfusion. H. STEGEMANN. *Arch. f. klin. Chir.*, 1923, cxxii, 759. [278]

Transfusion through the umbilical vein in hæmorrhage of the newborn; report of a case. J. B. SIDBURY. *Am. J. Dis. Child.*, 1923, xxv, 290. [278]

The cholesterol content of the blood in anæmia and its relation to splenic function. W. MACADAM and C. SHISKIN. *Quart. J. Med.*, 1923, xvi, 193. [278]

The intravital course of hæmolysis, with a discussion of blood transfusion and the development of shock from transfusion. W. JANTZEN. *Klin. Wchnschr.*, 1923, ii, 129.

Transfusion in the treatment of anæmia. W. W. DUKE and D. D. STOFER. J. Missouri State M. Ass., 1923, xx, 161.
The cure of severe anæmia by blood transfusion. P. F. ZUCCOLA. Policlin., Rome, 1923, xxx, sez. med., 239.

Lymph Vessels and Glands

The symptoms and treatment of traumatic subcutaneous extravasation of lymph. R. BONN. Deutsche Ztschr. f. Chir., 1922, clxxvi, 53. [279]

Rupture of blood vessels in extremities affected by elephantiasis. A. W. SMIROFF. Medizinskaja Myssl, 1922, 311.
The surgical treatment of elephantiasis of the limbs. C. LEFEBVRE. J. de chir., 1923, xxi, 434.

Miscellaneous

Continuous intravenous infusion. E. UNGER and H. HEUSS. Therap. d. Gegenw., 1923, lxiv, 15. [279]

SURGICAL TECHNIQUE

Operative Surgery and Technique; Postoperative Treatment

The principles of the care of surgical patients. G. M. BLECH. Am. J. Clin. Med., 1923, xxx, 255, 327, 413.
Assistants in operations. E. LEXER. Muenchen. med. Wchnschr., 1923, lxx, 460.
War-time gunshot wounds. R. H. FOWLER. Med. Times, 1923, li, 107.
The treatment of gunshot wounds (1,545). Translated by H. E. Sigerist. A. PARÉ. Leipzig: Barth, 1923.
Postoperative tetanus. W. D. PATTON. Canadian M. Ass. J., 1923, xiii, 332.
Cosmetic surgery of the skin. D. V. G. RODRIGUEZ-JAÉN. Siglo méd., 1923, lxx, 503, 532, 555, 582.
Regarding the importance of gripe in the development of postoperative complications, particularly postoperative sepsis. H. CZERMAK. Arch. f. klin. Chir., 1923, cxvii, 916. [280]
The significance of Chvostek's sign in postoperative tetany. S. JATROU. Mitt. a. d. Grenzgeb. d. Med. u. Chir., 1923, xxxvi, 356.

Antiseptic Surgery; Treatment of Wounds and Infections

Skin injuries from electricity. S. JELLINEK. Wien. klin. Wchnschr., 1923, xxxvi, 157.
Rivanol and wound infection from anaerobes of the soil. C. BRUNNER. Zentralbl. f. Chir., 1923, l, 458.
The action of rivanol. E. BLOCH and F. SCHIFF. Klin. Wchnschr., 1923, ii, 747.
A further discussion of germicides and the presentation of a new germicide—meroxyl. H. H. YOUNG, E. C. WHITE, J. H. HILL, and D. M. DAVIS. Surg., Gynec. & Obst., 1923, xxxvi, 508. [280]

Gonococcic abscess treated by the injection of anti-gonococcus serum. LEIRI and LUTON. Bull. et mém. Soc. méd. d. hôp. de Par., 1923, 3s. xxxix, 7.
The use of yatren in surgical tuberculosis. E. RUESCHER. Muenchen. med. Wchnschr., 1923, lxx, 392.
Tetanus. N. SPIEGEL. Veroeffentl. a. d. Kriegs- u. Konstitutionspath., 1922, iii, 5.
Changes in the motor ganglion cells in wound tetanus. L. ASCHOFF and G. REINHOLD. Veroeffentl. a. d. Kriegs- u. Konstitutionspath., 1922, iii, 51. [281]
Yaws, a study based on over 2,000 cases treated in American Samoa. D. HUNT and A. L. JOHNSON. U. S. Naval M. Bull., 1923, xviii, 599.
Polyvalent antigangrene serum. A. SORDELLI. Semana méd., 1923, xxx, 932.

Anæsthesia

Anæsthesia and anæsthetics. C. H. BASTIN. Canadian M. Ass. J., 1923, xiii, 329.
The theory of narcosis. W. FRIE and H. GRAND. Ztschr. f. d. ges. exper. Med., 1923, xxxi, 350. [281]
The anæsthetic action of pure ether. H. H. DALE, C. F. HADFIELD, and H. KING. Lancet, 1923, cciv, 424. [281]
A study of iso-agglutinins before and after ether anæsthesia. J. G. HUCK and S. M. PEYTON. J. Am. M. Ass., 1923, lxxx, 670. [281]
Ethylene as a gas anæsthetic. A. B. LUCKHARDT and J. B. CARTER. J. Am. M. Ass., 1923, lxxx, 1440.
Intravenous narcosis. H. SCHNITZER. Muenchen. med. Wchnschr., 1923, lxx, 270.
The safety of local anæsthetics. C. NIELSEN and J. A. HIGGINS. Internat. J. Orthodont., Oral Surg., & Radiography, 1923, ix, 370.
Butyn as a local anæsthetic. E. L. VERNON. Am. J. Ophth., 1923, vi, 402.

PHYSICO-CHEMICAL METHODS IN SURGERY

Roentgenology

X-rays and X-ray apparatus—an elementary course. J. K. ROBERTSON. J. Radiol., 1923, iv, 157.
The auto-electronic X-ray tube of Lilienfeld. I. S. HIRSCH. J. Radiol., 1923, iv, 162.
An instrument for measuring distortion due to the divergence of X-rays. E. C. HILL. Bull. Johns Hopkins Hosp., Balt., 1923, xxxiv, 164.
Roentgen-ray silhouettes. J. J. MOORHEAD. J. Am. M. Ass., 1923, lxxx, 1455.
A method for the opaque meal examination of the stomach. S. G. SCOTT. Proc. Roy. Soc. Med., Lond., 1923, xvi, Sect. Electro-Therap., 35. [283]

The problem of stimulation of growth by the roentgen ray; the results of biological experiments on plants. G. SCHWARZ, A. CZEPA, and H. SCHINDLER. Fortschr. a. d. Geb. d. Roentgenstrahlen, 1922, xxix, 687.
A handbook of roentgen and radium therapy. J. WETTERER. Leipzig: Kleim and Nemnich, 1922.
The effects of roentgen rays and radio-active substances on living cells and tissues. L. LOEB. J. Cancer Research, 1922, vii, 229.
Injuries of the skin caused by the roentgen ray. H. T. SCHREUS. Fortschr. a. d. Geb. d. Roentgenstrahlen, 1923, xxx, 81, 88.
Measurement of dosage by means of ionization chambers. W. DUANE. Am. J. Roentgenol., 1923, x, 399. [283]

The effect of the roentgen rays on subacute inflammations. C. KEMP. *Deutsche Ztschr. f. Chir.*, 1923, clxxvi, 272. [283]

Protective factors in modern highline X-ray work. A. SOILAND. *Am. J. Roentgenol.*, 1923, x, 394.

A new high voltage X-ray therapy. S. LANGE. *Cincinnati J. M.*, 1923, iv, 123. [284]

The blood with deep roentgen-ray therapy: hydrogen-ion concentration, alkali reserve, sugar, and non-protein nitrogen. E. F. HIRSCH and A. J. PETERSEN. *J. Am. M. Ass.*, 1923, lxxx, 1505.

Blood changes after radiation for abdominal tuberculosis. P. P. GOTTHARDT. *Fortschr. a. d. Geb. d. Roentgenstrahlen*, 1923, xxx, 85.

Roentgen-radium-chemotherapy of malignant tumors. S. WERMEL. *Moskow. M. J.*, 1922, ii, 57.

Radium

The use and abuse of radium. A. D. LITTLE. *J. Med. Ass. Georgia*, 1923, xii, 180.

The effect of radium and the X-rays on enzyme action. S. C. ROTH and J. J. MORTON. *Am. J. Roentgenol.*, 1923, x, 407. [285]

Radium and surgery. W. H. B. ATKINS. *Internat. J. Surg.*, 1923, xxxvi, 189.

The indications for radium treatment and a summary of the results. L. A. POMEROV. *Ohio State M. J.*, 1923, xix, 324.

The treatment of vascular naevi with radium. R. H. RULISON and S. McLEAN. *Am. J. Dis. Child.*, 1923, xxv, 359.

The removal of angiomas with radium. C. SWANSON. *J. Med. Ass. Georgia*, 1923, xii, 181.

Miscellaneous

Diathermy and medical practice. H. T. CUBBON. *Brit. M. J.*, 1923, i, 897. *Lancet*, 1923, cciv, 1060.

Diathermy in surgery. H. PICARD. *Deutsche med. Wchnschr.*, 1923, xlix, 13. [285]

Endothermy, a surgical adjunct in accessible malignancy and pre-cancerous conditions. G. A. WYETH. *Surg., Gynec. & Obst.*, 1923, xxxvi, 711.

Experiments on the bactericidal action of the violet ray. E. B. FISHER. *California State J. M.*, 1923, xxi, 218. [285]

The effect of the ultraviolet rays on phagocytosis. D. ALBELA. *Deutsche med. Wchnschr.*, 1923, xlviii, 1347. [285]

Further indications for intensive heliotherapy. H. REH. *Strahlentherapie*, 1922, xiv, 715.

Therapeutic results of chemicotherapy in some cases of cancer. R. A. BULLRICH and L. U. REBUFFETTI. *Semana méd.*, 1923, xxx, 786.

MISCELLANEOUS

Clinical Entities—General Physiological Conditions

Traumatic shock; some experimental work on crossed circulation. M. A. McIVER and W. W. HAGGART. *Surg., Gynec. & Obst.*, 1923, xxxvi, 542. [286]

Severe shock following the injection of arsenobenzol. BOUYER. *J. de méd. de Bordeaux*, 1923, xcv, 320.

The toxemia of severe superficial burns in children. B. ROBERTSON and G. BOYD. *Am. J. Dis. Child.*, 1923, xxv, 163. [286]

Surgery in diabetic patients. H. COHEN. *N. York M. J. & Med. Rec.*, 1923, cxvii, 606.

Surgery and diabetes. E. L. YOUNG, JR. *Boston M. & S. J.*, 1923, clxxxviii, 767.

The major infections. W. J. MAYO. *Illinois M. J.*, 1923, xliii, 283.

The treatment of leprosy. W. DUBREUILH. *J. de méd. de Bordeaux*, 1923, xcv, 151.

Three cases of tropical sore. L. A. ANDREWS. *J. Roy. Army Med. Corps, Lond.*, 1923, xl, 371.

Ischaemic fat necrosis. C. E. FARR. *Ann. Surg.*, 1923, lxxvii, 513.

Cancer, the tribulus terrestris of diseases. S. HARNSEBERGER. *Virginia M. Month.*, 1923, li, 85.

Suggestions concerning the etiology of cancer from a clinical point of view. O. P. TURNER. *Practitioner*, 1923, cx, 395.

Remarks on the evolution of carcinoma and the pathologic physiology of carcinomata. M. RENAUD. *Bull. et mém. Soc. méd. d. hôp. de Par.*, 1923, 3s.xxxix, 192.

The nucleo-cytoplasmic ratio and cancer. B. SOKOLOFF. *J. Cancer Research*, 1922, vii, 395.

Studies based on a malignant tumor of the rabbit. I. The spontaneous tumor and associated abnormalities. W. H. BROWN and L. PEARCE. *J. Exper. Med.*, 1923, xxxvii, 601.

Studies based on a malignant tumor of the rabbit. II. Primary transplantation and elimination of a co-existing

syphilitic infection. L. PEARCE and W. H. BROWN. *J. Exper. Med.*, 1923, xxxvii, 631.

Carcinoma in youth. W. LANGSTON. *Med. Herald*, 1923, xlii, 120.

Multiple malignant tumors. G. GLUSCHKOWSKI. *Wratschebnoje Djelo*, 1922, v, 280.

The relationship of cellular differentiation, fibrosis, hyalinization, and lymphocytic infiltration to postoperative longevity of patients with squamous-cell epithelioma of the skin and lip. L. D. POWELL. *J. Cancer Research*, 1922, vii, 371.

The urgent need for education in the control of cancer. J. E. ADAMS. *Proc. Roy. Soc. Med., Lond.*, 1923, xvi, 29.

Fever as a symptom of visceral cancer. L. H. BRIGGS. *Med. Clin. N. Am.*, 1923, vi, 1491.

A new form of miostagmine reaction in malignant tumors. G. IZAR. *Klin. Wchnschr.*, 1923, ii, 641.

The influence of inorganic salts upon tumor growth in albino rats. K. SUGIURA and S. R. BENEDICT. *J. Cancer Research*, 1922, vii, 329.

The salt content of malignant tissues. G. L. ROHDENBURG and O. F. KREHBIEL. *J. Cancer Research*, 1922, vii, 417.

Some general principles deduced from the present status of anti-cancer therapy. Cancer Commission. *Presse méd., Par.*, 1923, xxxi, supp. 726.

The treatment of malignant tumors. E. KREUTER. *Muenchen. med. Wchnschr.*, 1923, lxx, 451.

Preliminary report on my treatment of cancer. V. LEVITSKY. *Serb. Arch. f. d. ges. Med.*, 1923, xxv, 14. [287]

The future surgery of cancer. SEMPRÚN. *Rev. españ. de cirug.*, 1922, iv, 478.

General Bacterial, Mycotic, and Protozoan Infections

Calcium therapy in tuberculosis. M. BORGOGNO. *Policlin., Rome*, 1923, xxx, sez. prat., 627.

Ultraviolet energy in tuberculopathies. A. J. PACINI.
Ohio State M. J., 1923, xix, 333.

Natural and acquired streptococcus immunity. F. P. GAY and L. F. MORRISON. J. Am. M. Ass., 1923, lxxx, 1298.
Actinomycosis treated with copper sulphate. R. H. IVY.
Ann. Surg., 1923, lxxvii, 618.

Ductless Glands

Discussion on the present position of organotherapy.
S. VINCENT, G. R. MURRAY, W. R. GROVE, H. VINES, and others. Proc. Roy. Soc. Med., Lond., 1923, xvi, Sect. Therap. & Pharmacol., 9.

Surgical Pathology and Diagnosis

The preservation of the natural colors in gross specimens.
O. KLOTZ. J. Lab. & Clin. Med., 1923, viii, 514.

Functional investigations of inflammation. VON GROER.
Monatsschr. f. Kinderh., 1923, xxiv, 519.

The mechanism of bacteriostasis. J. W. CHURCHMAN.
J. Exper. Med., 1923, xxxvii, 543. [287]

The antagonism between diphtheria and colon bacilli and a search for its practical utilization. VAN DER REIS.
Ztschr. f. d. ges. exper. Med., 1922, xxx, 1.

Trephination of the sternum, a simple method of removing bone marrow for diagnosis during life. C. SEYFARTH.
Deutsche med. Wchnschr., 1923, xlix, 180. [287]

Experimental Surgery

Experimental studies on the influence of decomposition products of the endocrine glands on tumor growths in mice.
D. ENGEL. Ztschr. f. Krebsforsch., 1923, xix, 339.

Hospitals; Medical Education and History

The new Boston Lying-In Hospital. COOLIDGE, SHATTUCK and HOWLAND. Mod. Hosp., 1923, xx, 421.

Eight hundred years of service at St. Bartholomew's. R. H. P. ORDE. Mod. Hosp., 1923, xx, 409.

The liability of the hospital for the acts of its servants.
J. A. LAPP. Mod. Hosp., 1923, xx, 479.

Eulogy of Jenner. G. MARAÑON. Siglo méd., 1923, lxx, 429.

The ophthalmic history of Samuel Pepys. R. R. JAMES.
Brit. J. Ophth., 1923, vii, 231.

Medical Jurisprudence

Surgical diagnosis and legal medicine. P. REINBOLD.
Rev. méd. de la Suisse Rom., 1923, xliii, 337.

Care required of a hospital in the treatment of the eye.
Derrick vs. Portland Eye, Ear, Nose, and Throat Hospital,
209 Pac. Rep., p. 344. [287]

Malpractice in reducing fractures. Berkholz vs. Benepe,
190 N. W. Rep., p. 800. [288]

INTERNATIONAL ABSTRACT OF SURGERY

OCTOBER, 1923

ABSTRACTS OF CURRENT LITERATURE SURGERY OF THE HEAD AND NECK

HEAD

Ferry, G.: The Diagnosis and Treatment of Fractures of the Base of the Skull: Thirty-One Cases (Contribution à l'étude du diagnostic et du traitement des fractures de la base du crâne d'après 31 observations). *Rev. de chir.*, Par., 1923, xlii, 117.

There is considerable diversity of opinion in regard to the treatment of fractures of the base of the skull. The majority of surgeons, however, still favor Quénu's method of lumbar puncture in series. This has been used at the Sencert surgical clinic at Strassburg for the past three years.

This article is based on thirty-one cases treated by the Quénu method supplemented by the treatment of shock, the application of ice to the head, antiseptics of the facial cavities, and measures to keep the bowels open. Trephination was done subsequently in only two cases; both of these were fatal. The trephination was unilateral and subtemporal, and in both cases was warranted by meningeal complications.

In the thirty-one cases there were fifteen deaths, a mortality of 48.38 per cent. Some of the fatal cases were so grave that any treatment was hopeless. In eight of the cases in which death resulted early the fluid drawn by lumbar puncture was almost pure blood but the pressure was no greater than normal. Accordingly, there was not much localized compression and the efficacy of Cushing's operation in such cases appears doubtful. If the nine hopeless cases are excluded, the mortality falls to 27.27 per cent. In the sixteen cases in which recovery resulted the number of punctures varied from two to nine. The fluid drawn was bloody in two cases, blood-stained in seven, blood-tinged in five, and clear in one. It was under medium pressure in seven cases, under high pressure in eight, and under late high pressure in one.

If the lumbar fluid is freely bloody and under medium or slight pressure, very severe concussion and cerebral contusion is to be feared rather than

compression. The prognosis is very unfavorable; neither puncture nor trephination gives much hope. If the fluid is less bloody or only blood-tinged and under medium pressure or pressure slightly greater than normal, treatment by puncture or trephination offers a more favorable prognosis.

The symptoms of meningeal infection greatly modify the prognosis and even the therapeutic indications. In six of the thirty-one cases these appeared at periods ranging from the fourth to the fourteenth day, but even in cases of post-traumatic meningeal reactions lumbar puncture is of the greatest curative value.

Ferry concludes from his study that lumbar puncture in series is most beneficial in fractures of the base of the skull. Subtemporal trephination may be done to supplement it when the occipital foramen is blocked and when there is localized cerebral compression.

W. A. BRENNAN.

EYE

Mann, I. C.: Some Congenital Anomalies of the Eye and Their Confusion with Acquired Conditions. *Lancet*, 1923, cciv, 743.

Lesser abnormalities of the eye may sometimes simulate pathologic states. The author calls attention to the similarity between the early stages of an optic neuritis and papilloedema and the pseudo-neuritis often associated with high hypermetropia and high degrees of astigmatism. The symptoms associated with high degrees of hypermetropia may simulate those of increased intracranial pressure. In certain instances a coloboma of the disk and a glaucomatous cup may be confused. In the former the vessels are usually not seen at the bottom of the cup, while in the latter central vessels are seen and the fields show the characteristic contraction.

The conditions which may be confused with beginning glioma retinae are the various degrees of persistent hyaloid artery. The appearance of the anterior chamber in these cases is often of assistance.

In the former condition it is more apt to be narrowed, while in the latter it is normal or deeper than normal. In retinitis and choroiditis one must differentiate between patches of exudate, hæmorrhages, areas of choroidal atrophy, the presence of opaque nerve fibers either at the edges of the disk or along the courses of the larger vessels, the presence of the posterior vortex vein which may simulate a large hæmorrhage, and congenital coloboma of the choroid.

The congenital anomalies of the parts of the eye anterior to the vitreous are as a rule more obvious. The chief signs of an old iritis which may lead to confusion are irregularity of the pupil, the presence of organized exudate and adhesions to the anterior capsule of the lens, and the alteration in color. When there is irregularity of the pupil, coloboma of the iris, polycoria, and corectopia must be considered.

True adhesions of the iris to the anterior capsule of the lens may occasionally be found in polycoria and corectopia. More commonly they are simulated by tags of persistent pupillary membrane. As a rule these are attached to the anterior surface of the iris a little way from the margin while the true iritic synechia springs from the edge of the pupil. In congenital heterochromia iridis the absence of signs of inflammation and atrophy will be noted. Coloboma of the lids and congenital opacities of the cornea must be differentiated from the results of trauma.

Congenital ptosis may be unilateral or bilateral. In slight cases the lids may show movements associated with mastication and deglutition. In all cases of congenital ptosis the pupillary reaction and accommodation are normal. When the history is vague the possibility of a luetic syndrome, myasthænia gravis, incipient bulbar palsy, and cerebral tumor or abscess must be considered. In cases of squint, congenital defects of the muscles or nerves must be ruled out. It should be remembered that inequality of the pupils may accompany marked dissimilarity in the refraction of the two eyes. Congenital nystagmus is generally associated with some defect which hinders central fixation and this must be looked for to allay the suspicion of a neurological condition.

AUGUSTUS B. DYKMAN, M.D.

Parker, W. R.: Visual Changes Due to Sinusitis—Report of Two Cases. *J. Michigan State M. Soc.*, 1923, xxi, 177.

Parker reports two cases of visual defect due to sinusitis, one case of blindness in one eye and vision reduced to objects in the other, and one case of retrobulbar neuritis with loss of central vision. In the first case clinical examination was negative except for suggestive X-ray findings. The second case was relieved by drainage of the sinuses following operation on the septum. The case histories with perimetric charts are given in detail.

The chief points of interest in the first case were the indefinite findings of the X-ray and nasal examination, the swelling of the disks, the late

choroidal changes, and the character of the fields. Vision in the right eye varied from 6/7 to normal. Vision in the left eye varied from the ability to see 1½ ft. up and in only, otherwise shadows, to normal, in a period of two years ten months. The fields in this case showed a concentric contraction for form and color with a segmental contraction down and in in the right eye and up and in in the left eye. In the right eye there was an enlarged blind spot, and in the left a small scotoma between the disk and macula. Operation on the posterior ethmoids and sphenoids with evacuation of 2 dr. of pus from each side brought about an increase in vision and improvement in the fundus findings. The choroidal changes were noticed after operation, beginning with slight pigment migration below the inferior temporal vessels and below the macula. Later ophthalmoscopic examination showed slight pigment disturbance throughout the entire fundus.

In the second case vision at the onset was 6/6 in the right eye, and with the left eye the patient was able to count fingers up and out. External examination was negative. The tension was normal. The right eye showed clear media, a hazy posterior vitreous, and a hyperæmic disk. In the left eye the disk was oedematous, the veins were engorged, and there was an indistinct foveal reflex. The fields of the right eye were normal. In the left eye there was a large central scotoma and no green field. In this case the X-ray showed no evidences of disease in the sinuses and the sinuses were negative clinically. The nasal septum was deviated. Seven days after a submucous resection marked improvement in vision was noted. The central scotoma had disappeared.

Parker refers to the theories regarding the causation of retrobulbar neuritis, especially those regarding sinusitis, and mentions three responsible factors, viz.: (1) pressure on the optic nerve by oedema, (2) inflammation of the orbital portion of the optic nerve beginning in the orbital canal, and (3) the presence of a general infecting or toxic agent in the blood. He believes that in the two cases reported the difference in the field findings was dependent upon varying degrees of pressure on the optic nerve and sheath due to oedema of the nerve and the lining of the posterior ethmoid cells. It is a well-known fact that cases of old pan-sinusitis rarely show visual disturbances, possibly because an immunity has been developed.

Willbrand and Saenger contend that cases of retrobulbar neuritis should be classified into three groups, viz.: (1) axial neuritis with a central scotoma, (2) peripheral interstitial neuritis with concentric contraction of the field, the central vision remaining intact, and (3) diffuse inflammation, as in acute myelitis.

With regard to diagnosis the author states that reliance must not be placed entirely on the X-ray findings, and that the choroiditic changes noted in Case 1 were due probably to the toxic element that produced the lesion causing the field changes.

In the treatment, drainage of the sinuses may be indicated on the basis of the field changes alone, provided that toxic substances which might produce similar field changes and certain general diseases such as multiple sclerosis are ruled out.

AUGUSTUS B. DYKMAN, M.D.

Whitmire, A.: Fundamental Considerations in the Correction of Squint. *Arch. Ophthalm.*, 1923, lii, 242.

Whitmire reviews various theories regarding squint and discusses the cosmetic and health benefits which are derived from operative interference resulting in parallelism. He advises his patients to discard their glasses after operation. He modifies Reese's operation by passing a No. 10 silk suture into the muscle proximal to the Prince forceps after the tendon has been divided at the scleral attachment. This causes the severed edges to bend outward.

VIRGIL WESTCOTT, M.D.

Mancilla, G. A.: A Cavernous Angioma of the Orbit (*Angioma cavernoso de la órbita*). *Rev. méd. de Sevilla*, 1923, xlii, 26.

The author reports the case of a man 29 years old who complained of pain in the left eye and over the left temporal area which was associated with prominence of the eye, diminution of vision, and occasionally double vision. The condition began five years previously. Two years ago he had a catarrhal conjunctivitis in both eyes and the left eye remained inflamed for three months. Since then, all of the symptoms had been gradually increasing. There was no history of infectious diseases, syphilis, or injury.

Examination of the left eye revealed marked exophthalmos. The globe was pushed downward and inward. There was ptosis of the upper lid which was under marked tension. The conjunctiva was injected. The globe was of normal size and under normal tension. Vision was 20-40. There was limitation of the motion of the globe in all directions but especially upward. There was vertical diplopia. The fundus and media were normal except for slight hyperemia of the disk. The visual fields were normal for shape and color. The right eye was normal.

On palpation, a circumscribed, movable, regular, non-fluctuating, non-pulsating, soft mass was felt between the globe and the upper and outer rim of the orbit but not attached to either. This mass extended so far into the orbit that its entire extent could not be determined. On auscultation no bruit or souffle was noted. On aspiration, pure blood was withdrawn.

At operation the tumor was exposed by making an incision over the upper and lateral border of the orbit and pushing the soft tissues back. It was found to extend as far as the apex of the orbit and to be situated in the funnel-shaped space formed by the ocular muscles. After its removal the wound was closed around a small drain. Healing was

complete in fifteen days. After a period of a few months all signs and symptoms had disappeared. Vision and the motility of the globe returned to normal.

The tumor was about 4 cm. in its widest diameter, red, and soft. Microscopic examination showed it to be a typical cavernous hæmangioma with no evidence of malignant degeneration.

The author was able to find only eighty-three cases reported in the literature.

FRANKLIN P. SCHUSTER, M.D.

Roy, D.: Tuberculoma of the Orbital Cavity. *Literature.* *Arch. Ophthalm.*, 1923, lii, 147.

The author states that a diagnosis of tuberculosis of the eye made on the basis of ocular lesions associated with pulmonary tuberculosis, bone tuberculosis, or general tuberculosis in other parts of the body proved by the presence of the tubercle bacilli or pathologic tissue changes characteristic of tuberculosis is much more apt to be correct than a diagnosis based only upon the reaction to the tuberculin test or benefit derived from injections of tuberculin. In reviewing the literature Roy was impressed with the frequent lack of thoroughness in the diagnosis, such as neglect to use known clinical, serological, and histological tests.

In this article he reports a case of tuberculoma of the orbital cavity occurring in his own practice and abstracts case reports from the literature.

C. CORBIN YANCEY, M.D.

Williamson-Noble, F. A.: Endothelioma of the Orbit. *Brit. J. Ophthalm.*, 1923, vii, 222.

Williamson-Noble reports two cases of endothelioma of the orbit.

Case 1 was that of a girl 15 years old who had proptosis of the right eye for two months. Movement out and down was greatly limited, and movement up and in slightly limited. The pupil was inactive and the disk pale. Vision was fingers at 4 ft. The eye was enucleated and the growth removed. The structure resembled carcinoma of the breast. A diagnosis of scirrhous endothelioma arising from proliferation of the endothelial lining of the blood vessels was made.

Case 2 was that of a boy 3½ years old. Examination revealed chemosis, dilation of the pupil, some swelling of the disk, and proptosis. There was no perception of light. Movement was impossible. When the eye was enucleated the orbit was found filled with a hard mass which apparently passed through the sphenoidal fissure. The boy died with signs of an intracranial growth. The tumor contained bone and cartilage cells and involved the lachrymal gland. The optic nerve was not involved by the growth but showed signs of compression. While this tumor was not a typical endothelioma, it could not be regarded as a sarcoma. It was rather a teratoma of the orbit with many endothelial cells forming blood spaces.

VIRGIL WESTCOTT, M.D.

Killick, C.: The Treatment of Conical Cornea.
Brit. J. Ophthalm., 1923, vii, 264.

Killick urges the more frequent use of Placido's disk to diagnose early cases of keratoconus. He reports six cases. As a rule the treatment is surgical.

The pathology is not fully known. The cornea is greatly thinned and on microscopic examination Bowman's membrane is found intact but thinned and wrinkled. Descemet's membrane is unchanged.

In early cases complete rest of the eyes, the application of a firm pressure bandage, and general care are beneficial but do not cause flattening of the cornea.

The main operative measures are cauterization of the cornea, with or without perforation and combined if necessary with (1) optical iridectomy and tattooing, (2) sclerectomy, (3) excision of the apex of the cone, (4) extraction of the lens, (5) iridodesis or the iridencleisis operation of Critchett.

In one of the author's cases a simple cataract extraction was done. As the lens was almost transparent throughout, a fair amount of "after-cataract" remained. Then, as Critchett found that vision in keratoconus is improved by narrowing the pupil or making it resemble a stenopoeic slit, Killick made a narrow vertical opening in the capsule by discission. Marked improvement in vision resulted.

The method described is advanced as rational, simple, and without great danger. It causes no disfigurement and can be done in a reasonable length of time.

STEPHEN A. SCHUSTER, M.D.

Jones, C. P.: Interstitial Keratitis Due to Focal Infection. *Am. J. Ophthalm.*, 1923, 3s. vi, 461.

This article is the report of a very interesting case of interstitial keratitis which had been vigorously treated with anti-syphilis remedies for months. There had been no improvement and the other eye had become affected. The condition progressed to complete opalescence of the cornea and total blindness. The infection was in the tonsils and the roots of nine teeth. Very soon after these foci were removed the patient began to see, and within eight months vision had increased to 20/20 in each eye.

THOMAS D. ALLEN, M.D.

Forster, A. E.: A Review of Keratoplastic Surgery and Some Experiments in Keratoplasty. *Am. J. Ophthalm.*, 1923, vi, 366.

After reviewing the attempts at keratoplasty made during the last hundred years and ascribing the failures to the fact that tissue cannot be transplanted from one species to another, Forster reports the results of operations performed on six cat eyes.

An equilateral triangle of 7 to 8 mm. having been outlined on the cornea, the entire area was cut out, placed in sterile oil, and then replaced and sutured with its angles transposed. The sutures were

sterilized in oil. The lids were not sutured but remained closed for from one to three days and half opened for a week longer. In five cases the cornea healed in the same plane and was only slightly hazy. In one case it was opaque and staphylomatous. Fundus details could be made out in all but one case.

VIRGIL WESTCOTT, M.D.

Li, T. M.: Primary Ring Sarcoma of the Iris.
Am. J. Ophthalm., 1923, 3s. vi, 545.

Li reports a case of ring sarcoma of the iris with impaired vision, increased tension, and contracted fields above and on the nasal side. A short time before he was examined by the author the patient had noted blurring of vision and on several occasions the eye had been bloodshot. There was no complaint of pain. Two years previously a piece of steel had been removed from the eye. Microscopic examination showed a ring sarcoma of the iris with extension into the anterior portion of the ciliary body and around the entire circumference of the filtration angle. The optic nerve showed deep glaucomatous cupping with cavernous atrophy.

VIRGIL WESTCOTT, M.D.

Hughes, W. F.: Cataract Extraction and Complications. *J. Indiana State M. Ass.*, 1923, xvi, 79.

In selecting the method of treatment the operator must consider his own technical ability and experience, the nature of the cataract, and the characteristics of the patient. Among the points of importance are the corneal or sclero-corneal section, the iridectomy, and the treatment of the lens capsule. Reference is made to the treatment of the lens capsule advocated by Smith and Savage. The intra-capsular operation performed by Smith the author believes is falling into disuse in this country because of its many disastrous results.

With regard to the Barraquer operation, Hughes states that in selected cases and when the operator is experienced there is little, if any, danger, though defects are always apt to be present in any mechanical instrument and hemorrhage into the anterior chamber acts as a serious hindrance to the Barraquer technique. The complications include expulsive hemorrhage, squeezing of the lids, and contraction of the ocular muscles. Squeezing can be controlled by the use of a lid elevator, and contraction of the ocular muscles by the method of Angulucci or McReynolds. The importance of careful irrigation of the conjunctival sac before the operation is stressed. Other foci of infection in the teeth, the nose, and the throat should be searched for and treated.

Hughes quotes Staub regarding inflammation of the eye caused by resorption of the crystalline lens matter in eye lymph. Trauma to the iris is of little importance. The origin of the inflammation is to be sought in the chemical action of the remains of the crystalline lens. Staub's theory is cited as a reason for the removal of traumatic cataracts to prevent iridocyclitis. Secondary operations are

necessitated chiefly by the extraction of unripe lenses, as these do not separate as completely from the capsule as ripe lenses.

AUGUSTUS B. DYKMAN, M.D.

Pollock, W. B. I.: The Treatment of Early Opacities in the Senile Lens, with Demonstration of Six Cases. *Glasgow M. J.*, 1923, n.s. xvii, 32.

Nearly all ophthalmic surgeons have at times seen traumatic cataract partly absorbed. A certain number of cases of spontaneous absorption of senile cataract are also on record. These, however, are comparatively rare.

Experience has shown, especially in the last twenty years that the alkaline treatment of senile cataract is successful and that the results are not due to spontaneous absorption nor to the clearing of vitreous or fundus opacities. Early treatment is recommended, before the vision falls below 6/12. Potassium iodide, acetate, citrate, and chloride are used as drops.

THOMAS D. ALLEN, M.D.

Young, G.: On Macular Perception in Advanced Cataract. *Brit. J. Ophthalm.*, 1923, vii, 167.

In this article Young presents a case of high myopia with extensive choroiditis to demonstrate his method of ascertaining macular perception in advanced cataract. His outfit consists of four disks which fit the trial frame. The first disk to be used is a cross thread and serves merely to center the trial frame. The others have one, two, and three pinholes, respectively. In the last two mentioned, the holes are on the circumference of a circle with a diameter of 3 mm. With the one-hole disk in place the patient is brought very close to a frosted globe in a dark room and requested to look for a spot of light. The other disks are then inserted, and if the patient sees two or three spots, macular perception is considered good.

VIRGIL WESTCOTT, M.D.

Pitt, G. N., Shaw, H. B., Moore, R. F., Bardsley, P., Adams, P., and Others: Discussion on the Significance of the Vascular and Other Changes in the Retina in Arteriosclerosis and Renal Disease. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Med. & Ophth., 1.

PITT stated that this was a subject which interested both the physician and the ophthalmologist. He hoped that the discussion would make clear the relation between the amount of blood urea and the development of the retinal changes, and the relation of the retinal changes to arterial pressure and arteriosclerosis.

SHAW reported that in a large series of cases in which the heart was hypertrophied the sign of hyperpnea varies so greatly that in a few days it will fall from a maximum to a minimum not far from normal. Therefore it does not seem probable that it is due to such a stable condition as sclerosis of the middle coat of the vessels or a proliferation of the cells of the intima. He attributes it to the presence in the blood of a variable amount of poison which causes changes

in the vessels. The silver wire appearance of the retinal vessels, he stated, is due to thickening of the middle coat, while the irregularity of the lumen is due to the thickening of the intima. He compared the retinal hæmorrhage to the petechiæ of infective disorders. He stressed the facts that persons with renal retinitis live only a few years while those with arteriosclerosis live a great number of years, and the changes in arteriosclerosis are slow while those of renal origin are more acute. He cited eclampsia as demonstrating that changes in the retina are due to disordered blood states rather than changes in the kidney or retinal vessels.

MOORE endeavored to establish the three following propositions:

1. The ophthalmological appearances of arteriosclerotic retinitis are distinctive.
2. The retinal exudates are the result of local vascular disease.
3. In the length of life and the manner of death there is a sharp contrast between cases of renal and arteriosclerotic retinitis.

BARDSLEY stated that he had long attributed retinitis and sclerosis to toxæmia. If the ophthalmoscope shows advanced sclerosis with gross retinitis and this is associated with albuminuria, termination of life may be forecast in months or weeks. The sclerosis is the index of the chronicity of the intoxication.

ADAMS stated that in a study of 150 cases of retinal disease associated with arteriosclerosis he found that the patients lived to an advanced age unless albumin was present in the urine. The older the patient at the time of the onset of the eye symptoms the better the prognosis.

ELLIS reported that he was making a study of renal function in all cases of retinitis. Two facts so far determined are: (1) the constancy of high blood pressure in these cases, and (2) the possibility of dividing them into two groups, those with and those without gross disturbance of kidney function. In cases with impairment of kidney function uræmia usually follows in a short time. Patients without impairment of the kidney live longer but usually die of vascular disease.

HAWTHORNE objected to the nomenclature because the terms "toxic," "renal," and "arteriosclerotic" retinitis are based on undemonstrated hypotheses.

GASKELL pointed out that one disease involved the kidney and the other the vascular system.

CLARKE stated that high blood pressure is one of the symptoms of hæmorrhagic retinitis and suggested that in cases of hæmorrhage or exudate or both in only one eye the tension of both eyes be determined.

DAVIES reported that of fifteen cases of apoplexy nine showed marked arteriosclerosis. In four cases the signs of arteriosclerosis were slight, and in two the arteries were normal. Only one patient had hæmorrhagic retinitis.

PITT pointed out that while arteriosclerosis and cerebral hæmorrhage may co-exist, they are separate entities. A small retinal hæmorrhage is more apt to

indicate thrombosis with extravasation than a rupture. Pitt bases his prognosis on the blood urea and the kidney efficiency.

FEILING reported thirty cases which he divided into two groups, those which he called "arteriosclerotic" and those he designated as "renal." In the renal group he placed those with a definite history of acute nephritis, the persistent presence in the urine of large amounts of protein, and well-marked oedema. The average age of these patients was 43.8 years. All of them had bilateral retinitis. In the arteriosclerotic group the average age was 63.3 years. Sixty per cent had a unilateral retinitis.

FISHER stated that if we accept the toxic origin of the retinal changes the toxin should be found abundantly in the urine and in low concentration in the blood in the arteriosclerotic cases while in the renal cases the reverse would be true.

HARFORD drew attention to the fact that phobias are an essential element in advanced cases of renal disease, especially that complicated by ocular disease.

VIRGIL WESTCOTT, M.D.

Buchanan, L.: Monocular Optic Neuritis. *Brit. J. Ophthalm.*, 1923, vii, 170.

Buchanan reports four cases of acute monocular optic neuritis following exposure to cold. All were those of healthy women under middle age with no other symptom to indicate a cause for the papilloedema except the exposure to cold. Light perception was abolished in two of the cases and doubtful in the others. There was no involvement of the ocular muscles and no exophthalmos. The treatment consisted in rest in bed in a dark room, blistering of the temple, and the internal administration of a mixture of acetate and iodide of potassium and nuxvomica. The vision improved in every instance.

VIRGIL WESTCOTT, M.D.

Neame, H.: Two Cases of Tumor of the Optic Nerve. *Brit. J. Ophthalm.*, 1923, vii, 209.

Because of its rarity, Neame reports two cases of tumor of the optic nerve.

Case 1 was that of a boy 14 years old. For six years the mother had noticed that the left eye was growing larger. The right eye was normal. The left was proptosed and distinguished objects only as shadows. The pupil and tension were normal, and movement in all directions was good. The left disk was pale. There was no cup or swelling. While choroidal vessels were present in both eyes, those in the left were more apparent, and several passed to the disk and there disappeared.

The external canthus was divided. The external rectus was severed between sutures, and the eyeball drawn forward. The orbit was found filled with an elastic mass, but a small portion of the nerve was uninvolved behind the globe. The mass was removed by blunt dissection and the nerve cut near the eyeball. The external rectus was sutured and the orbit drained. The lids were then sutured.

Swelling was so great that the lid sutures cut and a keratitis developed which left an opacity. The power of the levator palpebrae was lost, the eye was abducted, and the iris and optic nerve were atrophied. The anterior portion of the optic nerve was widened into a sac. The optic nerve was normal half way back and then widened out. The new formation was composed of nucleated tissue with fibrils in a network structure. A diagnosis of gliomatosis was made.

Case 2 was that of a woman 79 years old. The right eye had been blind for many years but had been prominent for only three weeks. Examination revealed moderate proptosis, slight limitation of movement, a slight rise in tension, a mature cataract, and no light perception.

Excision of the globe was begun but only a partial exenteration was done because a mass was felt in the orbit. About the optic nerve a hard irregular mass was found. There was complete absence of the medullary sheath. The fibrous tissue of the lamina cribrosa was increased. A diagnosis of endothelioma was made.

VIRGIL WESTCOTT, M.D.

EAR

Pohlman, A. G., and Kranz, F. W.: The Effect of Pressure Changes in the External Auditory Canal on the Acuity of Hearing. *Ann. Otol., Rhinol. & Laryngol.*, 1923, xxxii, 545.

As up to the present time no satisfactory method has been devised for testing the acuity of hearing in any animal except man himself, experimental work has been limited. The Webster phonometer is the most sensitive type of physical apparatus for the detection of sound.

The problems under consideration in this article are: (1) the optimum air pressure in the external auditory canal for acuity of hearing; (2) the quantitative effect on acuity of hearing of increases and decreases in the air pressure in the external auditory canal.

Three tests were made; and the third test was repeated by using a small head type of telephone receiver instead of a thermophone. A vacuum tube oscillator was employed for the generation of electrical currents of the desired frequency, and a thermophone for the transformation of the electrical energy into sound energy.

The authors reach the following conclusions:

Under normal conditions the human middle ear is probably under slight negative pressure.

A negative pressure of 10 cm. of water in the air of the external auditory canal increases the acuity of hearing by a factor of three.

A negative pressure of about 10 cm. of water appears to improve the transmission of sound through the middle ear, probably by decreasing the tension of the drum membrane, increasing the tension of the connective-tissue attachment of the drum membrane to the malleus, and balancing the air pressure on the two sides of the membrane.

The more or less constant negative pressure reading seems to suggest that the tuba auditiva does not open to balance the pressure on the two sides of the membrane as is commonly assumed.

The variations in the acuity of hearing under these conditions seem to indicate that steps in the intensity of ratio of 5, or even perhaps 10, are sufficiently accurate for all usual purposes in determining the curve of minimum audibility.

JAMES C. BRASWELL, M.D.

Shambaugh, G. E.: The Structure and Function of the Crista Ampullaris. *Ann. Otol., Rhinol. & Laryngol.*, 1923, xxxii, 443.

In the author's opinion conclusions drawn from models are of very limited value as it is impossible to construct models having even the remotest resemblance to the delicate, complicated structure in the membranous labyrinth. Neither are experiments based on the results of operation on parts of the internal ear of lower animals of much assistance in the attempt to analyze the normal reactions of the end organs as operation is impossible without causing the escape of the labyrinth fluids. Reliance for an explanation of the reactions in the labyrinth resulting in a stimulation of its end organs must be placed chiefly on investigations made on the human being.

The normal stimulation of the crista is the result of endolymph movements against the sides of the cupola. In the author's opinion this motion of the endolymph is the result of the to-and-fro movements imparted to the fluid by the pulsation in the labyrinth artery. Clinical evidence indicates that this is the correct explanation of the origin of labyrinth tonus.

Shambaugh discusses the fistula phenomena, the caloric experiment, and the phenomena of fatigue in some detail.

JAMES C. BRASWELL, M.D.

Dennis, F. L.: The Practical Diagnostic Value of Tests of the Vestibular Mechanism. *Ann. Otol., Rhinol. & Laryngol.*, 1923, xxxii, 160.

The author emphasizes the need for a uniform technique in conducting the examinations and for a uniform nomenclature in recording the findings. One observer douches with water at 68 degrees F., while others use water at 65 or 55 degrees F. A faulty position of the head in turning or douching may cause apparent perversion or inversion of the nystagmus.

It is important that the examinations be made by one trained in otology, and worked out with a neurologist who is familiar with the findings of vestibular tests.

Intracranial lesions are difficult to localize on account of the variable response to pressure. Pressure affects remote parts of the brain as well as near areas, and good judgment is required to decide when a given finding is due to distant or near-by pressure.

The loss of responses from the vertical canals in cases in which there is probably no organic central

lesion may be explained by the selective action of certain toxins for certain parts of the nervous pathways to the exclusion of others. We know that, even in cases of central lesion, distant pressure can ablate the responses from the verticals and not so affect those from the horizontals. It is a fact also that after the turning of normal persons vertical nystagmus is much shorter in duration than horizontal nystagmus.

Anomalies of past-pointing after stimulation are frequently encountered. This may be due to the fact that past-pointing is a voluntary act. The findings of past-pointing are often disregarded unless confirmed by the findings of vestibular tests.

The author reports ten interesting cases in detail.

JAMES C. BRASWELL, M.D.

Mackenzie, G. W.: Some Remarks on Nystagmus. *Ann. Otol., Rhinol. & Laryngol.*, 1923, xxxii, 427.

Nystagmus is of two types, undulatory (oscillatory) and rhythmic. In undulatory nystagmus, which is due to impaired vision, the to-and-fro movements occur with equal rapidity. The visual defect is usually central and occurs early in life. In rhythmic nystagmus, which is due to paralysis of the external ocular muscles, irritative or destructive processes in the eighth nerve or the middle ear, or lesions of the cerebellum, the to-and-fro movements are unequal in rapidity.

VIRGIL WESTCOTT, M.D.

Bozer, H. E.: Chronic Suppurative Otitis Media. *Ann. Otol., Rhinol. & Laryngol.*, 1923, xxxii, 277.

Bozer studied the results of treatment in 190 cases of chronic suppurative otitis media to determine whether or not local treatment of the ear had any permanent beneficial effect. These cases were classified into four types. Cases of Type 1 were those in which the discharge was thin and mucoid, and arose solely from the eustachian tube. As a rule the perforation is of considerable size and situated in the antero-inferior quadrant, but in some cases the entire tympanic membrane may be absent because of a previous active suppurative process of the middle ear which has since healed.

Cases of Type 2 were those in which the suppurative process was confined to the hypotympanum and mesotympanum. The perforation of the tympanic membrane may be large or small and situated anywhere in the pars tensa. The mucous membrane lining the tympanic cavity is often markedly thickened and granular in appearance, and secretes a thick mucoid fluid containing many leucocytes. Areas of necrosis of the bony walls may be present, and occasionally there may be necrosis of the lower portion of the ossicle.

Cases of Type 3 were those in which the suppurative process and necrosis involved the attic as well as the lower portions of the tympanum. Very often the perforation of the tympanic membrane is in Shrapnell's membrane, and most of the suppurative process is concealed. Generally, however, the attic seems to be involved secondarily, so that

Shrapnell's membrane is intact. A probe introduced from below the level of the anterior and posterior folds will find free access into the attic and often will dislodge masses of thickened discharge, fragments of necrosed ossicles, and portions of a cholesteatoma which have collected in that region.

Cases of Type 4 were those in which there was definite suppuration of the antrum and the adjacent mastoid cells as well as suppuration and necrosis of the lower portions of the tympanum. This is often demonstrated by fistulous tracts from the posterior canal wall leading into the mastoid cells, the walls of which are often necrotic or have been eroded by a cholesteatoma. Occasionally, the aditus ad antrum is so enlarged by a cholesteatoma that the anatomical effect of a radical mastoid operation is produced. A radical mastoid operation is indicated in all cases of this type. Before operation, preparatory treatment should be given to clean the middle ear and its appendages as much as possible in order that the postoperative care may be shortened. In any of the types mentioned an open tube, contributory to the discharge, may be present.

The method of treatment used in the series of cases reviewed was essentially a combination of the antiseptic, alcohol, and caustic methods described by Politzer and called empirically by the author the "dry method" in contradistinction to the "wet method" in which irrigation is used. All treatment was done in the office, the patient not being permitted to use any treatment at home. In this way better observations could be made of the condition and its control.

This study revealed the fact that 54 per cent of the patients remained in good condition following treatment. The duration of treatment averaged about four weeks. A surprising fact was that Types 3 and 4 often responded most readily. It has been customary in the Mayo Clinic to give each case with chronic suppurative otitis media a test of treatment before the radical mastoid operation is advised.

The conditions which seemed to be factors in the recurrence of the discharge from the ear were an open tube, head colds, a functioning membrane on the promontory which had not been entirely destroyed and converted into scar tissue by the disease process, and the avoidance of aqueous solutions in the canals. In 19 per cent of the cases in which the ears did not remain dry after treatment there was a small amount of moisture due to a functioning membrane on the promontory or a discharge from the tube. The duration of the disease process before the patients presented themselves at the Clinic was about fourteen years. Sex and age appeared to be unimportant factors. Care not to produce undue back-pressure in the nasopharynx and eustachian tube when blowing the nose was found to be an important factor in the control of the condition in the ear as 31 per cent of the patients reported that they felt it had a very decided beneficial effect.

Bozer draws the following conclusions from this study:

1. About 50 per cent of the patients with long-standing, chronic, suppurative otitis media who have responded satisfactorily to treatment remain in good condition for a period of at least one to two and one-half years.

2. Sex, age, and constancy of discharge have no apparent effect on the permanency of the cure.

3. Long duration of the discharge is not necessarily an unfavorable factor.

4. The patency of the eustachian tube and the presence of functioning membrane in the middle ear must be taken into consideration with the type of the disease when a prognosis as to the permanency of cure is made.

5. Local treatment must be well directed and continued as long as necessary.

6. Care in the blowing of the nose is an important factor in keeping the ear dry in at least 30 per cent of the cases.

7. Many patients whose ears were cured and remained dry would have been subjected to a mastoid operation if a conservative view had not been taken and if local treatment had not been continued as long as necessary.

8. It is reasonably safe to assume that suppurative ear conditions which have responded well to treatment will do so again.

9. Discharge from the tube after the suppurative process has been controlled may be considered of minor importance so far as true danger is concerned.

Thomsen von Colditz, G.: The Treatment of Otitis Media with Tuberculin. *Ann. Otol., Rhinol. & Laryngol.*, 1923, xxxii, 149.

In the author's opinion a large part of the skepticism in regard to the value of tuberculin is due to the fact that many men do not know which test is indicated in a given case and do not understand how to use tuberculin therapeutically.

Many persons without an active process will react to tuberculin because of the delicacy of the test and because most persons have had a tuberculous infection at some time. It is essential to know how to differentiate the active from the latent infection.

The author reviews the Moro, von Pirquet, conjunctival, intracutaneous, and subcutaneous tests. The subcutaneous test is without doubt the most valuable, but as the reaction is severe it is sometimes contra-indicated.

The history should be taken carefully in every case of chronic otitis media and if there is reason to suspect a previous tuberculous infection the patient should be thoroughly tested with tuberculin.

The author reports five cases of chronic otitis media in which the use of tuberculin gave excellent results. He draws the following conclusions:

1. A patient with a chronic suppurating ear should always be tested for tuberculosis.

2. When a patient has a positive reaction to the proper tuberculin test, he should be treated with

tuberculin, even though other bacteria are found in the ear discharge.

3. A patient reacting positively to a tuberculin test should be impressed with the fact that the prognosis is good provided he takes treatments regularly.

4. A mastoid operation should be done only as a last resort.

JAMES C. BRASWELL, M.D.

Dench, E. B.: The Radical Operation in Chronic Suppurative Otitis Media: A Consideration of the Technique, the Use of the Primary Skin Graft, and the Result of the Operation with Particular Reference to the Function of the Organ. *Laryngoscope*, 1923, xxxiii, 241.

In the United States, and especially in New York, there seem to be many men who believe that the radical mastoid operation should be employed only in cases in which the middle ear lesion is threatening life and those in which the function of the organ has been so decreased by disease that any further danger to hearing is impossible.

There are various opinions as to the success of the procedure in obtaining a dry ear. In the author's opinion the chance of success in obtaining a dry ear and of preserving the function of hearing depends on the operator's technique.

The ear should be carefully examined with the speculum and with the X-ray. Ordinarily the incision should extend from the tip of the mastoid upward, following the line of the insertion of the auricle and $\frac{1}{2}$ in. behind it. If the mastoid is large and pneumatic, it should begin below the tip and extend behind the ear far enough to permit exenteration of all the cells, but still rest upon firm bone.

If the mastoid is sclerotic, the incision should not extend below the tip, and the attachment of the sternomastoid muscle should be left undisturbed so that the planes of the neck will not be opened to infection. If the zygomatic cells are extensively involved, only the soft parts covering them should be incised, the temporal muscle then being elevated without cutting.

The facial ridge should be taken down as low as possible, and the floor of the canal should be lowered. The hypotympanic and the posterior space should be entirely obliterated and the eustachian tube thoroughly curetted. Anomalous positions of the facial ridge should be borne in mind.

After the cavity has been formed the most important point is the enlargement of the external auditory meatus. The cavity must be aerated properly if it is to remain dry. This is impossible if the cavity is large and the meatus small.

The author advocates the systematic use of the primary skin graft. He employs it in every case other than those operated on during an acute exacerbation of the chronic inflammation. He uses it irrespective of exposure of the sinus or dura unless the sinus or dura has been wounded. If the labyrinth has been opened the use of a primary graft is contra-indicated.

A large graft completely lining the cavity should be employed. The air beneath the graft should be removed by a pipette, as recommended by Ballance, and the epithelial insert held in place by pledgets of sterile cotton. The graft should be forced well down into the mouth of the eustachian tube, and lapped well over the anterior wall of the canal. After the bony cavity has been lined, the redundant portion of the graft should be bent forward and the auricle replaced. The redundant portion should then be drawn through the enlarged meatus and held in place by a packing of sterile gauze.

The author reports the results obtained in a series of 480 cases made up of two groups: (1) 112 cases operated upon in private practice, and (2) 368 cases operated upon in hospital practice.

The hearing was made worse in only a very few cases. The author has determined that if a patient hears a moderate whisper at 20 ft. and shows no evidence of disease of the perceptive apparatus, the hearing may be slightly impaired after the operation. If he hears the whisper at a distance of only 4 ft. or less and there is no evidence of disease of the perceptive apparatus, the hearing will probably be improved.

In the entire series of 480 cases there were fourteen deaths. In the private cases there were three deaths, none of which were due to the operation. Ninety-five of the private cases were cured; that is, the ear remained dry. In seven there was less discharge, and in three there was no improvement. The result in four is unknown.

The hearing was improved in sixty-five of the private cases, remained the same in twenty-seven, and was reported worse in eight. The result in nine is unknown.

Of the 368 hospital cases, the ear is dry in 114. The result in 243 is unknown. In twelve of the cases the hearing was improved, and in one it remained the same. The result in 343 cases is unknown.

These statistics show that the operation is as devoid of danger to life as any major surgical procedure can be. Of the complications, facial paralysis is the most to be feared. This occurred in five of the private cases but cleared up entirely. Its incidence in the 368 hospital cases is unknown but it was low and all of the patients recovered.

The after-care consists in removal of the epithelial cast followed by the application of 80 per cent alcohol to the wall of the cavity. The ear should be examined once or twice a year. In a large number of the cases the hearing can be improved by applying a disk of cotton saturated with sterile vaseline over the region of the stapes.

W. B. STARK, M.D.

NOSE

Fenton, R. A.: Sinusitis from Swimming. *Ann. Otol., Rhinol. & Laryngol.*, 1923, xxxii, 526.

Water draws out the saline elements of cells by osmosis, causing edema, acidosis, loss of ciliary activity, and eventually cell death. The specific

protective substance of the sinus secretion is washed away or inhibited by the œdema and chemical degeneration of the secretory cells.

The danger of contamination by other swimmers is decreased by the coolness of the water, its constant agitation, and the high dilution of the contamination. The assumption that most persons succumbing to sinusitis after swimming are poisoned by their own nasopharyngeal bacteria which are forced into these cavities under conditions favoring their rapid growth and the retention of secretions has considerable justification.

Direct trauma to ostia and mucosal linings and bony dehiscence may be caused by the forcible inrush of water, especially chlorinated water, and the forcible outrush of air bubbles.

The prevention of sinusitis due to swimming is largely a matter of warning persons with latent nasal infection, "chronic colds," and similar conditions to keep out of the water. Persons with a high narrow nose, an occlusive deflection, or an impinging middle turbinate are particularly susceptible to infection. Persons with large sinuses and small ostia should be forbidden to do deep diving. As a prophylactic measure, heavy paraffin oil may be dropped in the nose. The author reports four typical cases of infection following swimming.

JAMES C. BRASWELL, M.D.

Dean, L. W.: Complications of Paranasal Sinus Disease in Infants and Young Children. *Ann. Otol., Rhinol. & Laryngol.*, 1923, xxxii, 285.

Dean emphasizes the importance of early recognition of paranasal sinus disease in children as the complications are often very severe and may lead to permanent deformities.

Many cases are described, some in which the postmortem findings fully confirmed the diagnosis made during life.

Arthritis, a frequent and serious complication, clears up if the sinus condition is recognized early and treated. Paranasal sinus disease may cause systemic infection as early as the age of 3 years. In infants and young children it is sometimes difficult to cure permanently.

Bronchitis is a very common result of the disease in infants and young children. In the case of every infant with bronchitis, even if adenoids are present, paranasal sinus disease should be suspected and the paranasal sinuses examined.

The disease may be the source also of pneumonia, and frequently there is an interdependence between paranasal sinus disease in young children and asthma.

One of the characteristics of sinus disease in young children is headache. Usually this is frontal and is attributed by the parents to eye strain. In some cases the headache may be neuralgic because of involvement of the nasal ganglion. Sometimes the frontal pain is very excruciating. A beginning tuberculous meningitis will cause the same type of pain as an acute frontal empyema. Other

symptoms of sinus disease are nasal stoppage and a feeling of fullness in the head.

Complications such as recurrent fever, periodic vomiting, pyelitis, cervical adenitis, brain abscess, ocular involvement, etc., are described in their relationship to paranasal sinus disease.

One of the most common and important complications which must not be overlooked is gastrointestinal disturbance. This is usually so severe that it is thought to be the primary trouble. In the author's opinion it is questionable whether the disturbance is the result of the swallowing of the nasal discharge or due to the elimination of bacterial products through the gastro-intestinal tract.

A. R. HOLLENDER, M.D.

Harter, J. H.: Practical Considerations of Ethmosphenoidal Sinusitis. *Laryngoscope*, 1923, xxxiii, 417.

Four important points in the prophylaxis of ethmosphenoidal sinusitis are: (1) the scientific treatment of acute coryza; (2) the avoidance of forced blowing of the nose; (3) the avoidance of nasal douching, except in cases of ozæna; and (4) the removal of any intranasal obstruction to ventilation and drainage.

The author gives the classification of sinus diseases and the most important points in the diagnosis. In the diagnosis of chronic ethmosphenoiditis points of importance are: (1) the visible evidence presented by the nasal cavities, the pharynx and the epipharynx, (2) the roentgenogram, which shows the size and shape of the cells, and (3) the characteristic pain.

The pathology is described in some detail. Conservative treatment is advocated for acute catarrhal and acute suppurative cases. For chronic catarrhal cases with only a small amount of discharge palliative measures are recommended.

A. R. HOLLENDER, M.D.

Boebinger, M. B.: Nasal or Sphenopalatine Neurosis. *Texas State J. M.*, 1923, xix, 35.

Boebinger introduces his discussion of the sphenopalatine neurosis with a review of the anatomy to show the relationship between the sphenopalatine ganglion and the various accessory sinuses of the nose.

The neurosis is of two types: (1) the neuralgic, consisting of intense, excruciating pain radiating to any or all parts supplied by the branches of the ganglion, and (2) the sympathetic, in which there are paroxysms of sneezing and a watery discharge from the nose suggesting hay-fever but which is in no way due to pollen.

With regard to the differential diagnosis the following points are mentioned:

1. Cocainization of the sphenopalatine ganglion stops the pain of a lesion in the ganglion.

2. Cocainization of the sphenopalatine ganglion does not in any degree stop the pain caused by the

more central lesion of the nerve trunks, maxillary and vidian, secondary to sphenothymoidal inflammation.

3. The intrasphenoidal application of pain-reducing remedies, such as cocaine, will stop the pain; that is, a local anæsthetic applied centrally to the ganglion will be effective.

The treatment consists in injecting into the ganglion from 5 to 15 minims of 5 per cent phenol in 95 per cent alcohol or swabbing the area with an aqueous solution of 12, 12, 25, 50, and 75 per cent silver nitrate after cocaineization.

For the injection, a 5-cm. Luer syringe with a 1-mm., 5/16-in. needle with a cross-bar is used. In some cases the injection must be repeated. The best results are obtained in the cases of sympathetic neurosis. When sinus disease is present the author uses the suction apparatus.

The complications, which are not numerous or severe, include the following:

1. Paresis of the abducens after the injection.
2. Swelling and ecchymosis appearing in the cellular tissue beneath the lower lid and closing the eye after the injection.
3. Secondary hæmorrhage from the nose, which often makes packing necessary.
4. The entrance of the alcohol-phenol solution into the pharynx or the larynx.

The article is concluded with five case reports.

O. M. ROTT, M.D.

MOUTH

Blair, V. P., and Moskourtz, M. J.: *Cancer of the Mouth and Jaws. Internat. J. Orthodont., Oral Surg. & Radiography*, 1923, ix, 218.

The authors believe that dentists should recognize the importance of thoroughly observing all the mucous membrane exposed in the course of an examination of the teeth in order that timely advice may be given in cases of precancerous conditions. The relation of syphilis to the etiology and diagnosis of malignant disease of the mouth is of great importance. The treatment of early cancerous or precancerous lesions about the mouth with irritants is worse than failure to diagnose the condition.

A wart or warty growth forming at a point already the site of a condition predisposing to cancer should be regarded as an actual precancerous condition. Leukoplakia is the most common local precedent of cancer of the mouth. The conditions considered by Butlin as the most typical and frequent form of cancer of the tongue in its early stages are mentioned. There are certain characteristics of cancer which it is essential to remember: (1) the chronicity of the disease, (2) the continuous growth, (3) induration, (4) ulceration, (5) pain, and (6) involvement of the lymph nodes. In the presence of squamous-cell epithelioma of the mouth, the lymph nodes should be considered as already infiltrated.

E. C. ROBITSHEK, M.D.

Heidrich, L.: *The Surgery of Carcinoma of the Mucous Lining of the Mouth* (Beitraege zur Chirurgie der Mundschleimhautcarcinome). *Beitr. z. klin. Chir.*, 1923, cxxviii, 310.

This careful compilation covering a period of thirty years and 266 cases proves that carcinoma of the mucous membrane of the mouth has the most unfavorable prognosis of all cancers. Only 19 per cent of the cases were permanently cured, and cancer of the mouth is fifth in frequency of all cancers. On the basis of his cases and those in the literature to date the author discusses the relationship of age and sex to the condition, and its origin, symptoms, duration, and localization.

Involvement of the neighboring tissues is of great importance. The migration of cancer particles into the internal organs is very rare in cases of cancer of the mouth. An early diagnosis is essential; the importance of biopsy of every suspicious tumor or ulcer of the mouth is particularly emphasized. Early diagnosis should be followed by early treatment. At the Kuettner clinic, however, the limits of operability in cases of old cancer are very broad. For the prevention of cancer, all injuries, tears, and fissures of the mucous membrane, and particularly ulcers, must be treated correctly—never with caustics—and under certain circumstances a specimen of tissue should be excised. If biopsy shows the presence of cancer, immediate surgical treatment is imperative.

The rule of the clinic is: small cancers, large operations. Mere excision of the tumor alone is not sufficient. In every case total removal of the glands is necessary. Only when this is done can one speak of a radical operation for carcinoma of the mouth. Pre-operative and postoperative treatment is of great importance. The operation should be performed under local anæsthesia. The details of the operative technique must depend upon the situation of the tumor. The Sedillot-Kocher median splitting of the jaw and the lateral sawing of the lower jaw by the Langenbeck-Bergmann method have been found to give good exposure of the mouth and easy approach to the lesion. The cautery is not used in the removal of the growth.

Of the patients whose cases are reviewed 13.9 per cent died following the operation and 86.1 per cent were discharged from the clinic as cured. In cases of inoperable cancer the pain was decreased by excision of the ulcerated cancerous focus supplemented by the administration of analgesics. It was not influenced by bilateral ligation of the external carotid, the injection of diphtheria or erysipelas sera, or roentgen treatment. In spite of faultless technique, the latter was sometimes followed by very rapid growth of the tumor.

The average duration of life after radical operation was twenty-seven and four-tenths months in cases of tongue cancer, twenty-six and two-tenths months in cases of cancer of the mouth, ten and two-tenths months in cases of cancer of the pharyngeal tonsil, nineteen and eight-tenths months in cases of cancer

of the buccal mucous membrane, and fifty-six and two-tenths months in cases of cancer of the uvula.
STEGEMANN (Z).

Morgan, E. A.: Ulcerative Stomatitis and Its Treatment by the Intravenous Injection of Arsenic. *Am. J. Dis. Child.*, 1923, xxv, 354.

The author states that the terms "Vincent's angina," "trench mouth," and "suppurative gingivitis" refer to an acute infection of the gums by a spirilla and fusiform bacillus which cause local signs such as spongy, bleeding gums and necrotic areas in the immediate vicinity of the teeth, and general symptoms such as malaise, pyrexia, and anorexia. The term "ulcerative stomatitis" is frequently applied to Vincent's infection and described as such. The ulcers in ulcerative stomatitis are small and without the ragged necrotic appearance characteristic of Vincent's infection.

Lowered vitality and oral uncleanliness are the chief predisposing causes of suppurative gingivitis. The exciting cause is an infection of the gums by the Vincent organism.

The two principal modes of transmission are kissing and the use of food utensils which have been carelessly washed.

The onset of the condition is usually sudden. There is general malaise with a slight elevation of temperature. The breath is very offensive. The gums are deep red and bleed very readily. If the condition has been present for four or five days, areas of necrosis are often seen along the gum margin. Frequently the lymphatic glands below the jaw are enlarged.

The local application of Bowman's solution is very popular. The author has treated twenty-five cases by the intravenous administration of arsenic. The results have been very satisfactory and in some cases spectacular. The average length of time required to effect a cure was five and one-half days. In every case the cure appeared to be permanent.

JAMES C. BRASWELL, M.D.

Kolmer, J. A.: Arsphenamin Treatment of Spirochaetic Gingivitis. *Am. J. Clin. Med.*, 1923, xxx, 243.

In spirochaetic gingivitis, commonly known as pyorrhoea alveolaris or Riggs' disease, the local application of a 1 per cent solution of arsphenamin has proved very efficacious. Neo-arsphenamin should be used in 2 per cent solution. The arsphenamin solution should be the usual alkaline solution. The neo-arsphenamin solutions should be prepared in distilled water.

The drug is best applied by means of a syringe. One cubic centimeter of either solution is sufficient. Usually six to ten daily treatments suffice. If bacterial activity is suspected in addition, iodine, mercurophen, or silver solutions should be used in conjunction with the arsenical preparations. For treating these double infections, Kolmer recom-

mends a mixture of equal parts of a 1 per cent solution of arsphenamin and a 1:1000 solution of mercurophen.

O. M. ROTT, M.D.

New, G. B.: The Use of the Delayed Flap in Secondary Operations on the Palate and Antrum. *Minnesota Med.*, 1923, vi, 214.

The greater number of patients with cleft palate who are operated on at the proper age obtain a complete closure and good functional results. Occasionally, however, partial failures occur even under the most favorable conditions. Many of the larger postoperative openings are due to the operator's lack of knowledge of the principles of cleft-palate surgery. Such openings are usually in the hard palate or at the juncture of the hard and soft palates and are sometimes closed with difficulty, depending on their size and location and the amount of scarring present. It is in these postoperative cases and those of wide cleft palate (many of them double) in which doubt arises as to the best procedure to follow, that the author has found the use of the delayed flap very satisfactory.

It is best to wait at least three months after the first operation before attempting a second, as operations performed immediately after the primary operation usually result in failure. For the closure of postoperative openings of the palate, tissue may be obtained from the palate itself or from other parts such as the cheek or the neck. In obtaining tissue from the palate, three types of flaps may be used. In cases of small openings with little scarring, the mucoperiosteum around the opening may be freed laterally and the opening closed by means of lateral incisions and mattress sutures. The objection to this method is that the scarring around the opening is sometimes so extensive and the tissue so inelastic that the mesial margins are brought together under slight tension and sloughing sometimes results. In other cases closure may be obtained by making a flap with a pedicle along the margin of the postoperative opening, turning it

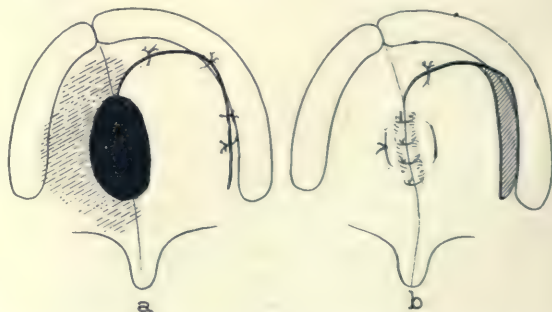


Fig. 1. The closure of a postoperative opening in a palate by means of a delayed flap with a posterior pedicle. *a*, The flap has been elevated and sutured back in place, and at the same time the opposite side of the palate is freed. In a week the flap is again elevated, and the mesial margins are pared and then sutured together as shown in *b*.

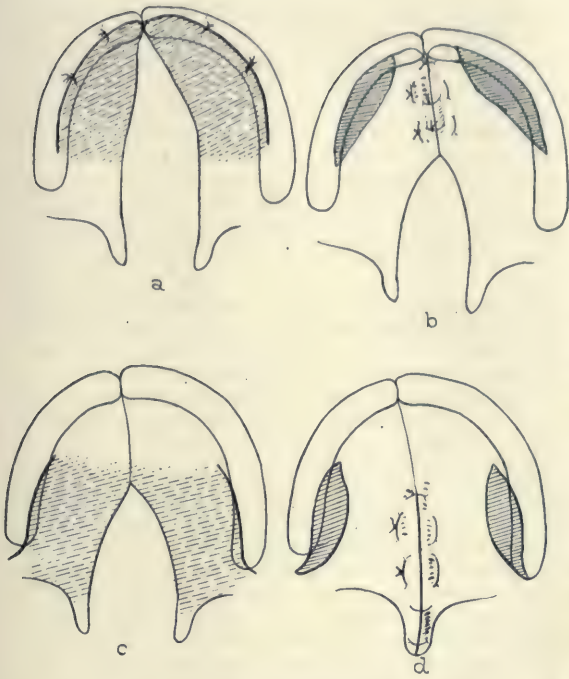


Fig. 2. The closure of a postoperative palate in which the opening is too wide and there is too much scarring for the usual Langenbeck operation. *a*, Flaps are elevated from either side of the anterior part of the palate and sutured back in place. The aponeurosis of the palate is not freed at this time. *b*, The closure of the anterior part of the palate is completed one week later. *c*, The first stage of the second operation three months later. The posterior part of the palate and the soft palate is freed by lateral incisions, and at the end of a week the mesial margins of the flaps are pared and the palate is closed in the usual manner.

completely over, hinge-like, and suturing it underneath the freed margin of the opposite side of the opening, as described by Lane. The scarred margins of the opening, however, make very poor tissue for a pedicle, especially when the flap is turned over on itself.

The Davis-Colley method is similar to the Lane method. Flaps are obtained from each side of the palate. One has the pedicle along the mesial margin of the opening and is turned over, hinge-like. The other is long and narrow, with its pedicle posterior. The latter is sutured over the other flap with its mucous membrane toward the mouth.

The third method is the use of a pedicle flap, with the pedicle posterior on the palate, which is brought across in a one-stage operation with its mucous membrane surface toward the mouth.

The method which the author has found most successful in the closure of both large and small openings is the application to cleft-palate surgery

of the principles employed in using the delayed flap in plastic surgery of the face and neck.

The flap is outlined on one side of the opening with the pedicle posterior, and then elevated and placed back in its original bed. At the same time, the opposite side of the opening is elevated from its mesial margin and allowed to fall back. A suture or two may be employed to hold the anterior extremity of the flap in the correct position. At the end of a week the flap is again elevated and the mesial margin trimmed and sutured across the opening to the freshened and elevated margin of the opposite side. During the week of delay the blood supply to the flap is improved a great deal and the flap becomes thicker. In the second stage, minute areas of slough, if present, are trimmed off as the margins are freshened.

If the original opening is very large, or the post-operative complete cleft palate is very wide, with marked scarring, it may be necessary to effect the closure in two stages, in the first stage closing the anterior part of the palate by delayed flaps from each side without freeing the aponeurosis of the palate, and three months later completing the closure by the two-stage Langenbeck operation.

The same procedure is employed in closing post-operative openings in the antrum following osteomyelitis of the jaw, the removal of malignant growths, or a Denker operation. The flap is elevated from the inside of the cheek with the pedicle high and then sutured back in place. At the same time the margins of the opening are freed. After a week, the flap is sutured in place around the opening. The pedicle may have to be cut in a week or ten days and replaced to the cheek, but this may not be necessary if the base is close to the opening.

The results of this method of closing postoperative openings in the palate and antrum have been much more satisfactory than those of any other method tried. Closure may be effected with the delayed flap in cases of cleft palate which were formerly better taken care of by means of a plate and in cases in which the mucoperiosteum is very thin. While this method does not make all cases of cleft palate operable, it has added to the operable group many which were not benefited by previous operative procedures.

THROAT

Carles, J.: Rhinopharyngitides: Their Rôle in Contagion and the Development of Certain Infectious Diseases (Les rhino-pharyngites: leur rôle dans la contagion et le développement de quelques maladies infectieuses). *J. de méd. de Bordeaux*, 923, xcv, III.

The author reports three clinical cases illustrating the rôle played by inflammation of the rhinopharynx in the development of infectious diseases. The first was that of a 9-year-old child with acute tonsillitis due to a coccus infection. Recovery was slow. After fifteen days sudden severe pain developed at the level of the upper epiphyses of both tibiae and the

lower end of the right femur. This yielded in twenty-four hours to hot fomentations. Five days later there was another attack of pain in these areas but it subsided again within a few hours. Such attacks continued. One and one-half months after the onset of the trouble another attack was accompanied by sore throat. The sore throat yielded to a gargle of hydrogen peroxide. The tonsil crypts were cleaned out and at the end of three weeks a tonsillectomy was done. The crypts were full of foul plugs.

The two other cases reported were cases of nephritis. One was acute and one chronic. Both were lighted up by attacks of tonsillitis. Other cases of pharyngeal infection with pulmonary complications are mentioned.

KELLOGG SPEED, M.D.

Peterson, E. W.: Sepsis Following Tonsillectomy.
Ann. Surg., 1923, lxxvii, 760.

Peterson reports the case of a child 4 years of age who was allowed to go home on the day following a tonsillectomy and adenoidectomy, and that night developed a fever of 104 degrees F. with swelling at the angle of the jaw on both sides of the neck. When examined, it had a temperature of 105 degrees F., and was apathetic and decidedly septic in appearance. The general examination was negative except for the presence of a dirty-looking membrane in the tonsillar spaces and a suppurative cervical adenitis just below the angle of the jaw on the right side. Incision and drainage of this abscess had no effect on the general condition. For the first ten days the temperature remained constantly high, ranging from 102 to 106 degrees F. It then became intermittent and ranged from 97 to almost 107 degrees F. There was more or less fever for forty-seven days.

While in the beginning the patient was apathetic and wished to be left undisturbed, he was later extremely hyperæsthetic, wakeful, and fretful. On several occasions he had a severe chill. He lost weight and strength gradually and showed a moderate secondary anæmia. Blood cultures were negative. When the sepsis reached a subacute stage a transfusion of 320 c.cm. of unmodified blood was given into the left external jugular vein by the syringe cannula method. This was followed by a decided fall in the temperature and improvement in the appetite, in strength, and in the general condition. After a few days, however, the temperature began to rise again and a hard swelling developed in the left parotid region and gradually increased until the left eye was closed. Later, fluctuation could be detected just above and in front of the left external auditory meatus. Incision into this mass revealed a periostitis of the mandible on the left side just below the articulation. Another transfusion was then given. Following drainage of the focus of infection and the blood transfusion the temperature dropped to normal and convalescence was rapid and complete.

OTTO M. ROTT, M.D.

Rocher, H. L., and Lasserre, C.: Lymphosarcoma of the Tonsil, the Thyroid, and Both Testicles
(Lymphosarcome de l'amygdale, du corps thyroïde et des deux testicules). *J. de méd. de Bordeaux*, 1923, xcv, 154.

In May, 1922, a 9½-year-old boy suffered an attack of angina. As a membrane appeared on the left tonsil, anti-diphtheritic serum was given. Ten days after recovery a tumor the size of a pigeon egg was found in the left tonsil; biopsy showed this to be a small-cell sarcoma. Two weeks later three radium needles were applied for thirty hours. Twenty days later the left testicle and cord became enlarged and hard. Five X-ray treatments were followed by subsidence of the tumor. Within another two weeks swelling of the thyroid developed.

On examination November 20 the child was found to be afebrile and in good condition except that his face was slightly swollen and congested. The left tonsil had almost completely disappeared and the pharynx was negative. The thyroid was enlarged and hard, but the overlying skin was not adherent. The boy had no pain and the thyroid mass moved on deglutition, giving no evidence of laryngeal or recurrent nerve pressure. The left testicle was hard and about the size of an egg. Where it was attached to the testis its cord, which was also much enlarged, simulated a bilobular tumor. Palpation seemed to reveal enlarged lymph nodes along the aorta. The right testicle showed beginning enlargement, and the blood examination a secondary anæmia.

The condition progressed rapidly and was accompanied by attacks of suffocation. Death resulted November 29 in spite of tracheotomy. When the tracheotomy was done a soft tumor infiltrated with blood was met before the trachea was reached. No tracheal rings could be identified and the tube could not be inserted. A piece of thyroid tissue removed for examination showed mitoses and diffuse infiltration of the tumor tissue which made its structure almost unrecognizable. This tumor was diagnosed as a lymphosarcoma.

KELLOGG SPEED, M.D.

Giddings, E., and Ehrlich, D. E.: An X-Ray Study in Intubation. *Laryngoscope*, 1923, xxxiii, 401.

As there appears to be no record pertaining to the X-ray study of intubation, the authors attempt to present graphically the various steps and some of the missteps in the procedure. Mention is made, however, of the work of Shurley who, in 1905, presented the subject of visualization of the procedure of intubation in a series of illustrations made on the dissected cadaver.

Intubation, like any other exact procedure, requires practice. One must have a tactile knowledge of, and be familiar with, the landmarks about the superior opening of the larynx and be able to insert the tube quickly, but not hastily. Without hurrying, a patient can be intubated and extubated within ten seconds.

The intubation set as originally devised by O'Dwyer is still used, but with one or two modifi-

cations. It consists of seven graduated tubes—namely, 1, 2, 3, 4-5, 6-7, 8-9, 10-12, the numbers indicating the various ages—an obturator to fit each tube, a mouth-gag, an extubator, and a small scale for measuring the size of the tube. The obturator fits into a handle or introducer with a spring attachment to push the tube off the obturator. As the prongs at the end of the spring become easily bent and retard rather than accelerate the pushing off of the tube, it has been found better to remove the spring and release the tube from the obturator by means of the finger.

The tube consists of a cylindrical metal core surrounded by a hard rubber covering so molded that a swell at its mid-portion accommodates the laryngeal configuration. At the upper part of the tube, on its posterior aspect, is a flange which holds the tube in place and prevents it from being pushed down the larynx. On the right side of the tube, with the phalange posterior, is a foramen through which passes a waxed string. The string acts as a safeguard to remove the tube if it accidentally finds its way into the œsophagus. The reason for waxing the string is to lessen the possibility of its becoming twisted when it is removed after the tube has been properly placed.

A tube which cannot be coughed up has been devised for special cases. Although metal tubes have been used as a substitute for those covered with hard rubber, experience has shown that the latter are most suitable, especially when the tube must be retained for any length of time.

The author calls attention to the anatomy of the larynx with regard to intubation and describes the technique of intubation and extubation in detail.

One of the rare complications is the slipping of the tube into the trachea and then into the bronchus. This may be due to trauma in the attempt to extubate too small a tube, or to a relaxed condition of the larynx. More frequently, the tube may be coughed up and pass into the nasopharynx. Its position may be detected by digital examination, the lower end of the tube being felt in the oropharynx. Still more frequently the tube is recovered from the bed or floor, or is discovered in the œsophagus or swallowed and passed with the stool on the third or fourth day.

The illustrations should be referred to by those who wish to visualize the many suggestions offered by the authors.

A. R. HOLLENDER, M.D.

Wylie, A.: One Hundred Cases of Laryngeal Growths Removed by Indirect Laryngoscopy.
Internat. J. Surg., 1923, xxxvi, 244.

Wylie urges the removal of laryngeal growths by the indirect method and reports 100 cases treated in this manner. The advantage claimed for the method is that it removes the growth with very little discomfort to the patient and without injury to the larynx or any other risk; in fact, the patient is perfectly well as soon as the operation is com-

pleted. Moreover, the operation can be performed in the office.

Several days previously, small doses of potassium bromide should be administered to relieve mental strain, and half an hour before the operation 1/100 gr. of atropin should be injected subcutaneously to lessen secretion. The operation is facilitated also if a suture is inserted through the epiglottis by means of a Horsford needle and then gently pulled forward.

The pharynx and larynx should be sprayed with a 10 per cent freshly prepared solution of cocaine, and two minutes before the operation the vocal cords and the growth should be sprayed with a 5 per cent solution of cocaine and olive oil.

MacKenzie's forceps are of value in most cases, especially if the growth is situated at the posterior end of the larynx or on the upper surface of the cords. Grant's forceps are specially adapted for tumors on the edge of the cords protruding into the lumen of the larynx. Whistler's forceps are serviceable for the removal of pedunculated growths. The universal forceps advocated by the author consists of a Krause cutting blade on a universal handle.

Otto M. Rott, M.D.

NECK

Thomas, W. S., and Webb, C. W.: Chronic Thyroiditis. *Clifton Med. Bull.*, Clifton Springs, N. Y., 1923, ix, 1.

Chronic thyroiditis is sometimes called "Riedel's disease" because it was first described by Riedel in 1896. Since Riedel's report a few other cases have been reported.

The condition is interesting because it resembles cancer in its rapid development, the swelling of the neck, the compression of surrounding structures which are included in its growth, and its hardness. It differs from cancer in that the patient recovers when the constriction is relieved by the removal of a small piece over the trachea.

The typical case reported in this article was followed by myxoedema due probably to the removal of too much of the growth. The sections showed only connective tissue. The authors emphasize the importance of avoiding too extensive removal and state that the use of the X-ray is contra-indicated on account of the danger to the few remaining thyroid cells. In conclusion they suggest that possibly cases diagnosed as cancer which recovered were in reality cases of chronic thyroiditis.

E. A. BAUMGARTNER, M.D.

Groover, T. A., Christie, A. C., and Merritt, E. A.: A Review of the Treatment of Hyperthyroidism by All Methods, with a Summary of the Authors' Experience with Roentgen Therapy.
Am. J. Roentgenol., 1923, x, 385.

The authors discuss the treatment of hyperthyroidism by surgical means and by roentgen irradiation and call attention to the importance of general management such as rest, diet, symptomatic treat-

ment, and the removal of foci of infection. They conclude from available statistics that in the exophthalmic type of hyperthyroidism the operative mortality is between 2 and 4 per cent, while in hyperfunctioning adenoma it is about 1.5 per cent. Surgical treatment effects a cure in about 75 per cent of the cases.

On the basis of Pfahler's experience, roentgen-ray treatment in hyperthyroidism offers the same chance of cure as surgery. Pfahler concluded that radiotherapy is the best form of treatment for toxic goiter. In the authors' experience, the average number of treatments necessary is five or six. The first four should be given three weeks apart and the next two at intervals of one month. After the fourth treatment the basal metabolic rate usually decreases steadily, the weight increases, and the entire clinical picture indicates rapid improvement. When the condition does not improve after the fourth treatment, thyroidectomy is indicated.

The advantages of the roentgen treatment are its freedom from danger, its ease of application with a minimum of inconvenience and loss of time to the patient, and its availability in inoperable and post-operative cases.

ARTHUR L. SHREFFLER, M.D.

Read, J. M., and Hiatt, R. S.: The Clinical Value of the Goetsch Test. *Med. Clin. N. Am.*, 1923, vi, 1527.

The authors carried out the Goetsch test on fifty-nine patients who were referred for the diagnosis of more or less obscure ailments and showed symptoms suggesting thyroid disturbance or obscure nervous manifestations.

In only two cases was a clinical diagnosis of thyrotoxicosis warranted. Both of these showed little reaction to epinephrin. Two cases which showed a clinical picture of hypothyroidism gave a positive reaction.

A positive response was given by forty cases. Sixty-two per cent of those giving a positive response and 52 per cent of those giving a negative response showed focal infection.

The authors explain the failure of cases of thyrotoxicosis to respond to the Goetsch test by stating that certain cases show little disturbance of the sympathetic nervous system. They divide patients with thyroid disorders into three groups: those with manifestations of toxæmia; those with alterations in the metabolic function of the body; and those with disturbances of the sympathetic nervous system. Since the response to epinephrin varies with the degree of involvement of the sympathetic system, its value in hyperthyroidism depends upon whether the involvement of the sympathetic system is the predominant factor.

SUMNER L. KOCH, M.D.

Stoss, M.: A Statistical Discussion on Goiter (Statistische Beiträge zur Struma). *Deutsche Ztschr. f. Chir.*, 1922, clxxvi, 325.

The author reviews 4,379 cases of goiter operated upon in the past six years. Recently the incidence

of the condition in males has increased from 16.3 to 30.4 per cent. This finding agrees with other reports in the literature which indicate that in severe endemics the incidence in females is relatively less than that in males. According to the opinion of the majority of physicians, the incidence and severity of goiter have increased since the war.

The majority of the patients coming to operation are between 16 and 20 years of age. After the twentieth year the decrease in the incidence of the condition is greater in men than in women. According to the author's observations there is no relationship between strenuous work and goiter.

In the cases reviewed most of the goiters found in the young weighed between 50 and 100 gm., whereas those removed from older persons weighed from 100 to 150 gm. The heaviest goiter (that of a man of 42 years) weighed 865 gm. In two women, 31 and 51 years of age, the goiters weighed 1,060 and 1,535 gm. respectively. Purely parenchymatous growths were found in 4.7 per cent of the cases. It was noted that the incidence of calcified goiters was greatest near the Alpine regions. Subjective respiratory symptoms were absent in 15 per cent of the cases. In 10 per cent there was difficulty in swallowing. Evidence of thyrotoxicosis was found in 28.8 per cent of the men and 44.1 per cent of the women. In women, therefore, the toxic symptoms are most prominent, and in men, the mechanical.

FISCHER (Z).

De Quervain, F.: The Pathologic Physiology of the Different Varieties of Goiter and Their Influence on the Blood (Zur pathologischen Physiologie der verschiedenen Kropfformen und ihrer Einwirkung auf das biologische Verhalten des Blutes). *Schweiz. med. Wchnschr.*, 1923, liii, 10.

According to Asher, the active principles of the thyroid secretion can be demonstrated in rats by variations in sensitivity to a lack of oxygen. This reaction De Quervain has employed in clinical cases. Rats were fed thyroid gland or injected with serum taken from the arm and thyroid veins and then studied with controls with regard to their reaction to a decrease in the oxygen supply. This test was made in 119 cases of thyroid disease. When goiter substance obtained from cases of Basedow's disease was fed, the sensitivity of the rats to a deficiency in oxygen was greatly increased. The other forms of goiter caused a decrease.

A certain agreement was found between the biological activity and the percentage and absolute iodine content of the thyroid tissue. Venous blood from the thyroid shows the same active effect as the substance, but in less degree, and venous blood from the arm is still less effective. This is active in the common colloidal goiter, although clinical signs of hyperthyroidism are absent, while in the adenomatous goiter its activity is almost nil and in cretins it is negative. Accordingly, colloidal goiter may be a transition stage to Basedow goiter, and the results of the experiments on rats were parallel

with the respiratory basal metabolism. As the decrease in the oxygen requirement of rats caused by the blood serum from the arms of certain cretins cannot be explained by the stimulated action of the thyroid gland alone, an antitoxic function must be assumed in addition. KOENIG (Z).

Wegelin, C.: The Parasitic Etiology of Endemic Goiter (Zur parasitaeren Aetiologie des endemischen Kropfes). *Monat. a. d. Grenzgeb. d. Med. u. Chir.*, 1923, xxxvi, 134.

Merk has reported observations from which he concluded that endemic goiter is due to a parasite. He described spores having the shape of a five- or six-sided pyramid with a depression surrounded by lips. A considerable number of these spores were found in spore sacs. Merk described also so-called rust cells which contained strongly refracting granules and rust balls. In three cases Merk found oval-like cells with a membrane and a slit-shaped opening. He concluded that these three forms represented the cycle of an animal organism, a protozoon.

Wegelin does not accept this theory. The spores, he believes, are damaged red blood corpuscles. This assumption he bases on the facts that they are found only in brown cysts and that they may be present also in other conditions such, for example, as ovarian cysts in which hæmorrhagic infarction has occurred following torsion of the pedicle. Wegelin did not observe spore sacs. He assumes that those seen by Merk were gland cysts with enclosed, shrunken erythrocytes. Merk's rust cells are not new, being well known. They are desquamated, partially fatty degenerated epithelia containing erythrocyte detritus which gradually are turning into hæmosiderin. The granules are lipid bodies easily stained with scarlet red and osmic acid. The rust balls had their origin in erythrocytes which were absorbed by phagocytosis. Wegelin was never able to find the oval-like cells described by Merk. From their size, as given by Merk, he assumes that they were not single cells but an entire follicle with a membrana propria. Follicles with such a membrane may be found in adenoma nodes but not in the normal thyroid. Also the facts that the early stage of endemic goiter consists of a diffuse hyperplasia of the gland tissue and that the cysts in which Merk found the structures he described appear only with advanced node formation and hæmorrhagic softening of the gland tissue in retrograde processes make it improbable that these are the causes of goiter. VON TAPPEINER (Z).

Marine, D.: The Prevention and Treatment of Simple Goiter. *Atlantic M. J.*, 1923, xxvi, 437.

Goiter is divided into two great groups, simple and exophthalmic. Simple goiter includes those thyroid enlargements designated as epidemic, sporadic, and physiologic. Exophthalmic goiter includes a large group of ill-understood clinical states in which increased heat production and myasthenia are the two major manifestations. Concerning the essential

nature of this condition we know only that it is a highly complex disturbance of functional interaction of many organs. It occurs spontaneously only in man, is not markedly associated with districts, and is most frequent in the more highly developed races.

Simple goiter may occur anywhere, but is rare at the sea coast. It is very frequent in the endemic goiter regions in which the soil was deposited for the most part by the melting ice of the last glacial period. The ultimate cause of simple goiter is unknown. The immediate cause is a deficiency of the iodine store of the thyroid due probably to the lack of iodine in water. The deficiency may be relative or absolute. It leads to metabolic disturbances and then to compensatory hypertrophy. The relation of the other glands, such as the adrenals and sex glands, must also be considered. The conception that goiter is due to infection must be abandoned, but toxins of bacterial or other origin sometimes play a rôle. The stimuli which initiate the growth of fetal rests into adenomata and the growth of normal tissue are probably the same. At first there is a decrease of colloid with hypertrophy of the cells; later there is much colloid. The anatomical changes vary, depending upon the species of animal. The decrease in the iodine in the gland precedes hypertrophy and hyperplasia. If the store is maintained above 0.1 per cent the changes do not take place. Other experimental facts concerning iodine and goiter are discussed briefly.

Extensive work by Marine and Kimball has shown that from 60 to 120 mgm. of iodine given in any form or manner twice a year is sufficient to prevent simple goiter. Marine believes it is best administered in the form of iodized salt. In young persons with recent goiter iodine has a strikingly curative effect. Theoretically, desiccated thyroid is better than iodine in both prevention and treatment, but practically is too dangerous. Marine uses it in treating long-standing goiters as this type does not absorb under treatment with iodine. He gives 1 gm. of desiccated thyroid in divided doses over a period of two weeks and then saturates the thyroid with iodine by giving 15 to 30 c.cm. of the syrup of hydriodic acid daily. This treatment is repeated twice yearly.

The danger of giving iodine or thyroid in indicated amounts to children and adolescents is usually negligible, but in the cases of adults there is a possibility of aggravating an exophthalmic goiter or producing its syndrome in certain susceptible persons. Variations in the susceptibility of different persons render desiccated thyroid dangerous for general use. Thyroxin has no advantage and many disadvantages over desiccated thyroid. Iodism was rare in Marine's experience (0.5 per cent in 2,200 cases), and in Klinger's cases (which were given iodized fats) it was entirely absent.

Simple goiter develops most commonly during fetal life, adolescence, pregnancy, and lactation. A plan of prevention during these periods would practically eliminate it. This prevention in children should be a public health measure carried out through

the schools under medical supervision. The prevention of goiter means the prevention not only of simple goiter but also of conditions secondary to it, such as cretinism, mutism, idiocy, certain adenomata, and certain cases of exophthalmic goiter.

FRANCIS T. H'DOUBLER, M.D.

Grier, G. W.: X-Ray and Radium Treatment of Goiter. *Atlantic M. J.*, 1923, xxvi, 516.

Only cases of hyperthyroidism should be given radiation treatment as the value of this therapy depends upon the power of the rays to inhibit or abolish secretory function or to destroy secreting cells. In the absence of hyperthyroidism, radiation is contraindicated as it will reduce a normally functioning gland to a state of hypofunction. Moreover, as it does not greatly decrease the size of the gland—destroyed cells being replaced by fibrous tissue—no cosmetic effect is obtained.

It is obvious that the diagnosis of the presence of hyperthyroidism is of prime importance. In the absence of exophthalmos this is not always easy. Since nervousness is common in the sick, and since thyroid enlargement is not an essential characteristic of hyperthyroidism, tachycardia is the only dependable cardinal symptom. A number of minor symptoms must also be taken into consideration. The latter include headache, weakness, loss of energy, sleeplessness, depression, dyspnoea, palpitation, digestive disturbances, profuse sweating, and the association of a good appetite with weight loss. An anxious look is very constant. Grier has found the basal metabolism test of great aid in the diagnosis.

A small percentage of adolescent goiters are accompanied by hyperthyroidism, and although recovery often follows medical treatment, a small amount of X-ray treatment combined with hygienic measures effects a cure in 100 per cent of the cases.

In cases in which exophthalmos and goiter are either jointly or individually slight or absent but the hyperthyroid syndrome and an increased basal metabolic rate are present an examination should be made for such defects as diseased tonsils and teeth and an inquiry made as to the patient's habits and hygiene. The author has seen recovery follow the removal of the tonsils. He believes that hyperthyroidism without goiter is due to chronic infection or irritation, and that exophthalmic goiter is a distinct entity due to shock, worry, etc. If the tonsils are diseased but tonsillectomy is contra-indicated, the tonsils and thyroid may be radiated at the same time. When a probable exciting cause of hyperthyroidism has been removed in a case without goiter, radiotherapy is the treatment of choice.

The average well-established case of exophthalmic goiter may be treated by radiotherapy usually with good results, but surgery is preferable if there are pressure symptoms or if the patient cannot afford to give the time necessary for radiation therapy, if his lack of intelligence or home conditions make proper hygiene impossible, or if he is convinced that surgery

is his only hope and therefore will not submit to protracted treatment.

Hyperthyroidism superimposed on simple goiter can be controlled by radiation, but as the goiter is not reduced, operation is preferable. Operation is preferable also in cases of hyperfunctioning intra-thoracic goiter, especially if there are pressure symptoms.

Grier uses one-half a skin erythema dose and exposes one lobe at a sitting. The other lobe he treats after a week. After a two-week interval he repeats the process. The isthmus and thymus areas are not treated. Several months are required for the condition to return to normal. The radiation treatment must be supplemented by careful regulation of the patient's habits and hygiene. The rays used are of a penetration corresponding to a 9-in. parallel gap and are filtered through 6 mm. of aluminum. Only the gamma rays of radium are employed. The radium is placed 1 in. from the skin. The author believes that the action of the X-ray and radium is identical. In cases of severe hyperthyroidism care must be taken not to aggravate the condition by giving too large a dose of radium. On account of the danger of secondary skin changes radiation should not be continued indefinitely. If no decided improvement is shown clinically or indicated by the basal metabolism after six months, operation should be performed. If there is slight improvement, radiation may be continued at long intervals and hygienic treatment persisted in until the condition returns to normal. Grier uses no medicine whatever in conjunction with radiotherapy. Whenever he tried iodine or thyroid extract it made the condition worse.

FRANCIS T. H'DOUBLER, M.D.

Waterworth, S. J., Cole, L. G., Frazier, C. H., and Others: Discussion of Symposium on Goiter. *Atlantic M. J.*, 1923, xxvi, 519.

COLE stated that he favored smaller doses of the X-ray than have been used in the past, and raised the question regarding injury caused by the ray to the parathyroids and the recurrent laryngeal nerves. He suggested that tetany may result from disturbance of the circulation after ligation of the inferior thyroid arteries. He recommended intravenous calcium treatment for tetany, and stated that before operation a thorough laryngeal examination should be made.

FRAZIER urged basal metabolism tests to differentiate the types of goiter. He never performs a primary thyroidectomy in a case with a metabolic rate above 60 but always performs it when the rate is under 50. He approves of Grier's views on X-ray treatment. He holds that usually there is less hazard in double ligation than single ligation and in a double lobectomy than a single lobectomy.

NEWCOMET reported the relief of symptoms by the X-ray when operation failed. He stated that he favors the dosage outlined by Grier and recommends radium for very irritable cases. He believes that in selected cases radiation may be tried before opera-

tion. As the correction of eyestrain, constipation, etc. may relieve all symptoms, he studies every case subjected to radiation as carefully as though it was to be operated upon.

WAINWRIGHT emphasized the importance of focal infection and stated that the removal of foci will often cause the disappearance of the entire goiter syndrome. He questioned the advisability of calling the thyroid enlargement of adolescence a goiter.

ROUSSEL recommended basal metabolism tests. He has had good results in cases sent to the roentgenologist for treatment. He stated that if the metabolic rate is high, the radiation should be preceded by rest in bed and dietary treatment.

GUTHRIE called attention to the hyperæmic skin of exophthalmic goiter which will not stand strong X-ray doses. Only experts should handle these cases.

MARINE expressed the belief that in exophthalmic goiter the thyroid is involved only secondarily, the primary stimulus lying outside of it, probably in the field of disturbed inter-relation of sex and para-sex glands with the thyroid. He stated that at present the best method we have to control exophthalmic goiter consists in depressing the metabolic rate by partial thyroidectomy, but that this is crude and attacks the problem at the wrong end. He views exophthalmic goiter and toxic adenoma as different phases of the same condition, it being largely a question of the age at which they develop. The adenomata become toxic at about the time of the menopause, but the vast majority of adenomata are not associated at any time with toxic symptoms. Simple goiter is decreasing, but exophthalmic goiter is on the increase. Prevention of the former is easy, but of the latter difficult and poorly understood.

Foss pointed out that adenomatous goiters, even those without toxic symptoms, seem to play a rôle in causing myocardial changes. Other authorities have shown a relationship between nodular goiters and myocarditis. Patients who have had ligations or single lobectomy must be watched as they will suffer a relapse necessitating a more complete operation.

GRIER stated that radiation does not destroy but causes regression of the thyroid and perhaps has the same effect upon the parathyroids. As nerves are very resistant to the X-ray, the recurrent nerve is not endangered.

FRANCIS T. H'DOUBLER, M.D.

Foss, H. L.: The Surgical Treatment of Goiter.
Atlantic M. J., 1923, xxvi, 508.

The author gives a brief review of the development of present-day theories as to the physiology and pathology of the thyroid gland and as to the cause, prophylaxis, and treatment of goiter.

He is convinced that the proper treatment for the large nodular, so-called adenomatous and cystic goiters of adult life is surgical because they are unsightly and annoying, embarrass respiration and deglutition, and cause degenerative changes in the cardiovascular system. The diffuse colloid goiters of adolescence should usually be given medical

treatment (iodine and thyroxin). In some cases, however, this fails and causes nervousness and loss of weight.

Cases of hyperthyroidism, whether due to a hyperfunctioning adenoma or excessive gland secretion produced in the hyperplastic and hyperactive acini of an otherwise normal gland, have one feature in common, namely, an increased basal metabolic rate. Hyperthyroidism may be associated with colloid goiter, colloid adenomatous goiter, multiple degenerative adenomatous goiters, and diffuse parenchymatous hyperplastic goiter. Hæmorrhage, inflammation, and calcification are no more common to the thyroid than to other tissues. The treatment of hyperthyroidism should be surgical. Experience and judgment as to the type and time of operation are of the greatest importance. In all but the moderately toxic cases, the multiple-stage plan of treatment is advisable, ligation of one superior pole being followed in from four to six days by ligation of the other pole. Possibly the inferior poles are ligated next, this being followed by a one- or two-stage resection of the gland.

The author protests against the loss of valuable time through useless medication in cases of hyperthyroidism, believing that such therapeutic measures are justifiable only as adjuncts to surgery. In the preliminary treatment of severe toxic cases, the X-ray and radium are valuable, and in skilled hands may rival surgery, but their effect is slow and the probability of relapse is great.

Many patients have been operated upon for hyperthyroidism when the symptoms were those of effort syndrome, disordered heart action, or neurasthenia, but, conversely, a greater number of cases of hyperthyroidism have been misdiagnosed and allowed to go untreated. The author attributes the prevailing confusion in diagnosis to the placing of reliance on the Goetsch and other tests instead of upon the basal metabolism and judgment based on experience.

FRANCIS T. H'DOUBLER, M.D.

De Quervain, F.: Protection of the Parathyroid Glands (Ueber den Schutz der Epithelkoerperchen).
Beitr. z. klin. Chir., 1923, cxxviii, 197.

The parathyroid glands are endangered by too extensive removal of the posterior surface of the thyroid lobes and by ligation of the inferior thyroid artery or its branches close to the capsule of the gland in the region of the arterial branches supplying the parathyroids. This was the main reason why de Quervain some time ago emphasized the importance of preserving the posterior capsule in the region of the endangered zone, namely, the cervical connective tissue. De Quervain's experiments led to the ligation of the inferior artery outside of the capsule.

In 2,203 cases treated by de Quervain there was no case of marked tetany. Slight functional disturbances of the parathyroids were noted in only three cases, which were among the 49 per cent of the total number operated upon on both sides during the last few years.

NAEGELI (Z).

Ujhelyi, J.: The Question of Drainage After Thyroidectomy (Die Drainagefrage bei Strumektomie). *Arch. f. klin. Chir.*, 1922, cxxii, 522.

The author discusses the advisability of drainage after thyroidectomy on the basis of 323 cases treated at the Bier clinic. He arrives at the following conclusions:

Drainage cannot prevent the formation of hæmatoma, the accumulation of secretion, or the primary infection, but it will prevent the dissemination of infection. On the other hand, it readily leads to the formation of fistulæ and secondary infection, prolongs the healing, and causes an unsightly scar. The undrained cases showed no greater postoperative fever than the drained cases. KOCHER (Z).

Porter, C. A.: An Analysis of My End-Results in Thyroid Surgery. *Surg., Gynec. & Obst.*, 1923, xxxvi, 621.

The author divides his series of cases into two groups, those of malignant diseases of the thyroid and those of toxic goiter. He has not analyzed his non-toxic goiters, but states that he has had 250 with but one death, this fatality being due to pneumonia and hæmorrhagic nephritis.

There have been nineteen cases of malignant disease. One patient whose condition was diagnosed as malignant lymphoma is well nearly eleven years after a subtotal thyroidectomy. Three patients with mixed-cell sarcoma died within a few days or weeks after the operation. Of fifteen cases with a diagnosis of carcinoma the results of treatment in eight were poor. Of the seven other patients, four were well one, five, seven, and ten years respectively after operation and X-ray treatment.

In cases of encapsulated adenoma which has undergone malignant degeneration the prognosis for cure is favorable, but when the tumor has become fixed to the trachea and has involved the recurrent laryngeal nerve it is particularly unfavorable. The author recommends radical operation if the X-ray examination shows the lungs to be negative and it is probable that all obvious disease can be removed. Local anæsthesia is much to be preferred to general anæsthesia. If malignant disease must be left behind, radium needles and X-ray treatment should be employed. Inoperable recurrences may be benefited by X-ray treatment. Operation offers more in the way of palliation or cure than treatment with the X-ray or radium alone.

The author's series of toxic goiters comprised 204 cases. The mortality based on the number of patients rather than operations has been steadily diminishing. When there is doubt as to the advisability of proceeding at operation, Porter advocates packing the wound with gauze and deferring the completion of the operation. At the Massachusetts General Hospital a thyroid clinic consisting of two medical men, two surgeons, and a roentgenologist has given X-ray treatment a thorough trial. If a case presents an enlarged thymus, this gland is radiated as it is believed that the operative risk is there-

by decreased. The author cites cases of exophthalmic goiter and toxic adenomata in which X-ray treatment caused considerable improvement or a cure as judged by the basal metabolic rate. After preliminary rest, with or without X-ray treatment, the graded operation is best—ligation or ligations, hemithyroidectomy or subtotal thyroidectomy.

In the 204 cases analyzed there were twenty-four deaths in the hospital and nine deaths after discharge. The author reviews these cases in detail with comment as to possible errors, especially that of doing too much at one time. Of the hospital deaths, thirteen were due to hyperthyroidism, this being a more frequent cause early in the series; six were due to pneumonia or bronchitis; two to pulmonary emboli; one to tetany; one to status lymphaticus; and one to shock. The nine deaths occurring after discharge were due to various causes; hyperthyroidism was responsible in only one case. The remaining cases heard from (147)—excluding twenty-six treated recently—are classified as unimproved, improved but not cured, cured with mental symptoms, cured with cardiac symptoms, and cured. A number of the cases are discussed. The best index of cure is permanent reduction of the basal metabolism to normal.

Porter finds from his cases that though ligation and hemithyroidectomy may often effect a cure, the ultimate subtotal thyroidectomy most quickly and permanently reduces the basal metabolism to normal. The psychoses of hyperthyroidism require long after-treatment.

In Porter's cases there have been no severe secondary hæmorrhages despite some very bloody operations. A careful preliminary examination of the larynx is imperative to prevent nerve injury. Such injury occurred in 10 per cent of the series, excluding malignant cases, and was more frequent in the earlier than in the later operations. Bilateral paralysis may be overlooked as the voice may be fairly good although high pitched and there is dyspnoea only at night or after exertion. Severe cases may require tracheotomy.

Infection is more common in drained than in undrained wounds. Local anæsthesia seems to predispose to infection. Porter prefers deep drainage through the ends of the incision with a small superficial drain in the midline outside the sutured prethyroid muscles. Fine silk is used for suturing. The stitches should be loosely tied and removed on the third or fourth day. FRANCIS T. H'DOUBLER, M.D.

Mayo, C. H., and Boothby, W. M.: The Mortality Rate Following Operations on the Thyroid Gland. *J. Am. M. Ass.*, 1923, lxxx, 891.

At the Mayo Clinic, during the year 1922, there were nineteen deaths following 1,983 operations on 1,497 patients for diseases of the thyroid gland, making the operative mortality 0.96 per cent. This—the common method of presenting statistics on goiter—not only fails to reveal the truth, but conceals facts which, when brought out by a more

detailed study, prove to be of great value. Statistics on surgery for goiter should be carefully and accurately analyzed, and the results presented for each disease on the basis of the number of cases.

An accurate basal metabolic rate is an index of the intensity of the disease in both exophthalmic goiter and adenomatous goiter with hyperthyroidism, and therefore, in conjunction with other factors, is of help in the selection of the best time for operation and the best type of surgical procedure. The basal metabolism is of even more importance as an aid in the establishment of a correct differential diagnosis of the various thyroid diseases. As a result of its use many unnecessary and sometimes harmful operations are avoided.

In this report all patients who died while under observation in Rochester immediately after surgical intervention on the thyroid gland are classified as having died from surgical procedures, regardless of the cause of death. The surgical mortality by case according to Plummer's classification of thyroid diseases was: adenomatous goiter without hyperthyroidism, 0.15 per cent; adenomatous goiter with hyperthyroidism, 3.48 per cent; and exophthalmic goiter, 1.99 per cent. The mortality rate for thyroidectomy in exophthalmic goiter is 0.96 per cent. The surgical mortality is based on the combined work of eight surgeons.

Kessel, L., and Hyman, H. T.: Studies of Graves' Syndrome and the Involuntary Nervous System. II. The Clinical Manifestations of Disturbances of the Involuntary Nervous System (Autonomic Imbalance). *Am. J. M. Sc.*, 1923, clxv, 513.

By way of introduction the authors refer to the phylogeny and embryology of the involuntary nervous system, the anatomical and physiological differences between the involuntary and voluntary nervous system, the thoraco-lumbar and bulbo-sacral subdivisions of the involuntary nervous system, and the factors which maintain the tonicity of the involuntary nervous system. Their report deals with cases in which the symptoms can be ascribed to disturbances in the realm of the involuntary nervous system. These symptoms they divide into three groups. The first group includes those which are objective and due to disturbance of the function of an organ in which no lesion can be demonstrated by the most painstaking clinical examination. The second group differs only in that the manifestations are subjective. In the third group are such symptoms as asthænia and tremor. To the syndrome presented by the association of these symptoms the authors apply the term "autonomic imbalance." In it they include conditions ordinarily called "larval hyperthyroidism," the "forme fruste" hyperthyroidism, Basedowoid, suprarenal insufficiency, etc. Eighty-six cases were studied. In none was there a definite or constant elevation of the basal metabolism, but autonomic imbalance was present in all.

The factors that predispose to this syndrome are at present unknown. As exciting causes, sex epochs, focal infections, and psychic insult are mentioned. Among the subjective symptoms are palpitation, dyspnoea, headache, insomnia, and loss of weight, while the objective symptoms include diarrhoea, eye signs, gastric disturbances, menstrual disturbances, sweating, vasomotor instability, mental disturbances, tachycardia, irregularities of cardiac action, and tremor. Reference is made also to phenomena that may be inferred to be sympathomimetic since they are frequently present in autonomic imbalance and are accentuated by adrenalin. Such are "nervousness," asthænia, goiter, and elevation of the basal metabolism. Interesting also is the reference to associated conditions, the correlation of symptoms, and sensitiveness to drugs. A table shows the responses to the subcutaneous injection of atropin and adrenalin in two groups of "normal persons" (medical students and convalescent patients). Of these, about 22 per cent reacted to atropin and 30 per cent reacted to adrenalin. The most constant symptoms observed in these patients were tachycardia and goiter without fever or change in the basal metabolism.

Unless the exciting cause of the imbalance can be removed, the results are extremely discouraging. The condition usually runs a long course.

The important points brought out in the article are summarized as follows:

1. A study of the clinical manifestations of autonomic imbalance is presented.
2. Such instability of the involuntary nervous system probably constitutes a diathesis.
3. Focal infection, psychic trauma, and the sex epochs accentuate the syndrome.
4. The symptoms are strikingly similar to those of Graves' syndrome. Autonomic imbalance may co-exist with myxoedema.
5. Local manifestations in a single organ, such as the stomach or heart, may attract attention to that organ instead of to the general disturbance of the involuntary nervous system.
6. Hyperplasia of the thyroid gland is very frequently associated with the syndrome. It is more apt to be secondary than causative.
7. In autonomic imbalance there is never a distinct and continuous elevation of the basal metabolism. This constitutes an important difference from Graves' syndrome.
8. The recognition of clinical autonomic imbalance is simple. More important, however is the exclusion of Graves' syndrome and the determination of the exciting cause of the imbalance.
9. There are no scientific data to prove the participation of the ductless glands in the production of this syndrome.
10. While persons with autonomic imbalance are usually sensitive to atropin and adrenalin, this drug sensitiveness may be present in the absence of autonomic imbalance. These facts may be explained on a pharmacological basis.

11. Clear-cut subgrouping of such persons into vagotonic and sympathicotonic cannot be made clinically until definite knowledge regarding the tonus of the involuntary nervous system has been gained.

12. Autonomic imbalance can rarely be arrested permanently. Usually the symptoms may be alleviated, but the diathesis persists.

13. Hormone therapy is without foundation and is useless.

E. C. ROBITSHEK, M.D.

Edling, L.: The X-Ray Treatment of Basedow's Disease (Erfahrungen ueber die Roentgentherapie bei Morbus Basedowii). *Fortschr. a. d. Geb. d. Roentgenstrahlen*, 1923, xxx, 117.

Of thirty of the cases of exophthalmic goiter which were treated with the X-rays by the author during the period from 1915 to 1919, twenty-five showed a definite Basedow syndrome, while five were of the "forme fruste" type. Thirty per cent of the patients were rendered almost free from symptoms, 43.3 per cent were benefited, 20 per cent were not benefited or died, and 6.7 per cent developed a recurrence.

Of first importance in judging the results is the pathologically changed metabolism indicated by the body weight. Next, the vasomotor disturbances must be taken into consideration (tachycardia, enlargement of the heart, diarrhoea, sweats), and finally the nervous symptoms, such as restlessness, etc. Of less direct importance are the goiter, exophthalmos, and tremor. These visible phenomena resist treatment longest. The majority of the cases were given hygienic and dietetic treatment in addition, but the author believes that the roentgen treatment was chiefly responsible for the cure. In most of the cases distinct improvement occurred within four months.

It is interesting to compare these cases with those given surgical treatment. An advantage of surgical treatment, which gives about the same results as roentgen treatment, is that it effects a cure more quickly. This is outweighed, however, by the danger of postoperative Basedow death, which occurs in about 10 per cent of the cases. Failure of the roentgen treatment, which occurs in about 20 per cent of the cases, is still unexplained. As usually these are severe cases, it is probable that the explanation must

be based on the still not sufficiently understood pathogenesis of the disease and the frequent difficulty in the clinical differentiation of the uncomplicated Basedow syndrome. Other causes cited, such as the duration of the disease, differences in the technique of radiation, unfavorable living conditions, serious cardiac changes, etc., have not been proved. An objection to roentgen treatment advanced by von Eiselsberg and Mayo is that it causes adhesions between the gland and the surrounding tissues which render subsequent operation more difficult. In the author's opinion this objection is not valid because among the Basedow cases operated upon in Lund, sclerotic changes were found even in some of those which had not been radiated.

VOLLHARDT (Z).

Fried, C.: The Roentgen-Ray Treatment of Basedow's Disease (Ueber Roentgenbehandlung des Morbus Basedow). *Deutsche Ztschr. f. Chir.*, 1922, clxxvi, 254.

In thirteen cases the practicability of roentgen-ray treatment was proved. After the conclusion of the treatment the patients were re-examined at regular monthly intervals. The technique used was essentially that recommended by Nordentoft and Blume. High dosages were employed. With 8 ma. secondary current, 85 kv. secondary gap, and a distance of 25 cm., there was given to the thyroid 80 per cent, and to the thymus 90 to 92 per cent, of an erythema skin dose. At first an aluminum filter of 3 to 5 mm. was used. Later, $\frac{1}{2}$ mm. of zinc and $\frac{1}{2}$ mm. of aluminum were employed. Most of the cases were given radiation for the second time after a period of three months.

Considerable improvement resulted in all of the cases. The subjective complaints of fear and insomnia disappeared early, but a certain irritability of the circulatory system persisted longer. Full ability to work returned. Objectively, improvement was indicated by slowing of the pulse, cessation of tremors, a gain in weight, and the condition of the blood. The increased haemoglobin content, the overcoming of the leukopænia, and the disappearance of the lymphocytosis were all worthy of note. The results justify more extensive investigations with radiation.

BRUNNER (Z).

SURGERY OF THE NERVOUS SYSTEM

BRAIN AND ITS COVERINGS; CRANIAL NERVES

Michael, J. C.: The Old Head Injury Case. *J. Am. M. Ass.*, 1923, lxxx, 1047.

This article is summarized as follows:

1. One hundred old head injury cases were studied with special reference to the neurological complications, the probable factors in their production, and the degree of the vocational handicap.
2. Except in cases of penetrating brain injury, the prognosis for life is very favorable if the immediate complications are overcome.
3. Freedom from invalidism is uncommon. Fifty-three per cent of persons so injured are unable to support themselves.
4. Careful, early treatment will do much to prevent chronic invalidism.
5. Increased intracranial pressure and signs of local irritation are the only indications for surgery of the head in the acute as well as the chronic case.

CARL R. STEINKE, M.D.

Martin, P., and Cushing, H.: Primary Gliomata of the Chiasm and Optic Nerves in Their Intracranial Portion. *Arch. Ophth.*, 1923, lli, 209.

This article is concerned with the report of seven tumors, all of them gliomata which seemed to have originated either in the chiasm or the optic nerves adjacent to it. In only one instance, and then because of a co-existent disorder, was the origin and character of the lesion surmised before operation. Though a correct localizing diagnosis of a suprasellar lesion had been made in every case except two, a tumor of hypophyseal or pharyngeal-pouch origin with secondary involvement of the chiasm through pressure was sought.

The authors favor the anterior route for exposure of the suprasellar region. The mortality of these osteoplastic procedures is very low, and in the majority of cases they afford an excellent view of the region from in front without damage to the brain.

At the time this article was written the Brigham Hospital series included 826 histologically verified intracranial tumors. Of these, 345 (41.7 per cent) were gliomata of various types and regions. The seven chiasmal tumors included in this report therefore represent only 2 per cent of the 345 gliomata and only 0.84 per cent of all verified tumors.

The 233 verified tumors arising from or near the hypophysis and affecting the chiasm by direct pressure were as follows: hypophyseal adenomata of all types, 164; craniopharyngeal pouch tumors, thirty-eight; endotheliomata, thirteen; interpeduncular gliomata, thirteen; teratomata, three; and epidermoid cholesteatomata, two.

In seventy-two cases a transfrontal operation was performed for obviously suprasellar lesions and the region of the chiasm brought into view. In eleven of these cases the nature of the lesion was not determined. The sixty-one cases which were histologically verified included twenty-seven tumors of the craniopharyngeal pouch, nine suprasellar endotheliomata, eight hypophyseal adenomata, five adenomatous cysts, five chiasmal gliomata, three cases of arachnoiditis circumscripta, two epidermal cholesteatomata, and two gliomata of the third ventricle.

The authors give the histories of five cases of chiasmal glioma found at operation and of two others which were first discovered at autopsy. The report includes forty-two illustrations.

Except in the presence of obvious evidences of von Recklinghausen's disease, the differential diagnosis must be based chiefly upon the findings of the ophthalmoscope, the perimeter, and the X-ray.

All of the seven cases reported showed an advanced optic atrophy, and in five there was no doubt that it was primary, as would be expected from a lesion of any sort whatsoever which compresses the nerves or chiasm. So far as noted, the ophthalmoscopic picture of these conditions is indistinguishable.

In all instances except the last, the loss of vision had been comparatively rapid and progressive, so that by the time the patient came under observation it had advanced to blindness in one eye at least. One patient was totally blind on admission, and two of the young children, in whom the registration of visual acuity was not possible, had apparently but little vision left. In the three patients whose acuity was recorded, vision was lost in one eye and greatly impaired in the other. Marked diminution of vision in the less affected eye seems to be a characteristic of cases of chiasmal tumors.

Perimetric observations which were regarded as reliable were possible in only three cases. In all of these there was a defect in the temporal half of the field, but in no instance did the hemianopsia show the clean vertical bisection which is so often characteristic of pituitary tumor.

A tendency to adiposity was apparent in four of the patients, a slight degree of polyuria and polydipsia in two of them, somnolence and lassitude in two, and loss or lack of hirsutes in two. In none of the patients, however, were these symptoms sufficiently evident to justify the designation of adiposogenital dystrophy which characterizes advanced grades of pituitary insufficiency.

Comparative differential points between the chiasmal and the more common variety of suprasellar tumors arising from Rathke's pouch are as follows:

Tumor of the Craniopharyngeal Pouch.

Primary optic atrophy. In late stages, because of hydrocephalus, edema may be superimposed.

Bitemporal hemianopsia, or if vision is lost in one eye, fairly acute vision retained in the seeing half of the other eye.

Process slow, often remaining stationary for long periods.

Sella variously deformed, enlarged, or normal. Posterior clinoids more affected than anterior. Suprasellar shadows common.

Secondary pituitary manifestations common with adiposogenital dystrophy and infantilism.

Tumor of the Chiasm.

Primary optic atrophy occasionally with tumor involvement of the nerve head. Unilateral exophthalmos in advanced cases.

Acuity low in both eyes, with fields showing less typical hemianoptic defects.

Process on the whole more rapid and progressive.

In advanced cases sella shows apparent extension under anterior clinoids from distention of optic foramina. No suprasellar shadows.

Secondary pituitary manifestations inconspicuous. Cutaneous indications of von Recklinghausen's disease to be sought.

The microscopic picture in the seven cases was unmistakably that of glioma. The authors give a complete description with each case report. As is true of gliomata elsewhere in the brain, there was considerable difference not only in the architecture but also in the structure of the several tumors.

Gliomata are designated as those tumors of the central nervous system which, with proper selective stains, show glia fibrils.

Whether complete removal of the chiasm involved in one of these lesions would be justified if the growth happened to be exposed at an early stage of the process and before it had spread is doubtful. The authors express this opinion in spite of the favorable prognosis given by ophthalmic surgeons in cases in which a large glioma has been removed with the orbital portion of the nerve. In the present stage of our understanding of the therapeutic possibilities of deep radiation, treatment with radium or the X-ray, though far from encouraging, is probably the best hope, but final judgment on these matters must be deferred.

The authors' conclusions are as follows:

"One consideration certainly will be of interest to ophthalmologists, namely, that we have here another explanation for some of the obscure cases of primary optic atrophy so often attributed to a retrobulbar neuritis. They will promptly recognize that we have dealt in this paper with a lesion already familiar to them, though largely when the process of tumefaction within one orbit has reached such a size that exophthalmos results.

"It is quite possible that we will all, ophthalmologists, neurologists, and neuro-surgeons, come to recognize these lesions with sufficient accuracy to permit us either to avoid operation altogether, or at least to know better with what sort of a lesion we will have to deal before its surgical exposure.

"Certainly a primary atrophy in cases of generalized neurofibromatosis, or even those with slight manifestations of this malady will rest under suspicion of having a gliomatous process in the chiasm or its adjacent nerves. Suspicion will be aroused also when there is an obvious swelling of an atrophic nerve head without evidence of increased intracranial tension.

"But even in the absence of these tell-tales of the process, when a primary atrophy of the nerves in young persons is associated with the peculiar sellar deformation which has been described, and without the shadows usually cast by the more common tumors of this region in childhood, one may well consider the possibility that the symptoms are due to a primary glioma of the chiasm."

CARL R. STEINKE, M.D.

Hinrichsmeyer, C.: Resection of the Choroid Plexus in Severe Unilateral Internal Hydrocephalus: Traumatic Ventricule Cyst (Resektion des Plexus choroideus bei einseitig hochgradigem Hydrocephalus internus: traumatischer Ventrikelcyste). *Arch. f. klin. Chir.*, 1923, cxvii, 742.

The theory that the cerebrospinal fluid has its origin principally, if not exclusively, in the the choroid plexus of the ventricles of the brain is gaining in probability. Dandy applied it in the treatment of internal hydrocephalus, since in the cases of four children he incised the brain and ligated and resected the tela choroidea where it makes its exit from the foramen of Monro. The author also has had an opportunity to remove this plexus and believes from his three weeks' observation of the case that he is justified in drawing conclusions regarding its influence upon the formation of cerebrospinal fluid.

The patient, who was 10 years of age, was brought to the hospital on account of epilepsy. This child had been delivered with instruments after three days of difficult labor, and suffered an attack of convulsions on the first day of life. One year later the convulsions returned, continued longer, and increased in severity. There was no noteworthy mental defect. The left hand hung limp and useless. The left foot was maintained in a slightly spastic equinus position. The diagnosis was infantile spastic hemiplegia.

An osteoplastic trephination was done in the right parietal and temporal region under the assumption that the condition was a traumatic cyst in the central region. The dura, which did not pulsate, showed a cicatricial area. When it was opened, a bluish, translucent cyst was revealed. This was incised after the removal of a watery fluid by puncture. There was then exposed a cavity, 7 cm. deep, 7 cm. wide, and 11 cm. long, which had smooth walls. In the center of the base of this cavity was the foramen of Monro from which issued the plexus, floating free in cerebrospinal fluid. Therefore the cyst was the dilated lateral ventricle.

A portion of the skull, the cicatricial area in the dura, and a portion of the thin cyst wall were excised and the wound was tightly closed. The cyst was found to be connected with the subcutaneous tissue. Resorption of the cerebrospinal fluid was manifested by œdema of the soft parts around the wound and the eyelids, but this soon disappeared. Subsequently the cavity refilled, the bony covering being lifted up. A cerebrospinal fluid fistula was formed in the

suture line. On account of the marked increase in pressure, lumbar puncture became necessary. Lumbar pressure finally increased to 360 mm. of water and there was marked bulging of the skull.

As the patient's condition became continuously worse, it was then assumed that the secretion of cerebrospinal fluid was increased by irritation of the choroid plexus and that a valve closure had occurred between the ventricles and lumbar space. Therefore at the end of six days the old wound was re-opened, the skull flap turned back, and the plexus, which was adherent at the base of the brain cavity, was ligated at its exit from the foramen of Monro and removed. Between the skull and the epicranium a tunnel was formed through the soft parts behind the right ear and tamponed with iodoform gauze.

After the operation there was marked oedema of the face and in the region of the wound. The tampon was therefore removed and the wound canal extended downward. The patient's general condition then became remarkably good, but on the twenty-fifth day after the first operation, when he was about to be discharged from the hospital, convulsive twitchings of the left half of the body and coma suddenly developed. Death resulted at the end of the third day following an epileptic seizure.

Autopsy showed principally in the frontal region of the right hemisphere a defect as large as a fist (the enlarged lateral ventricle). The frontal convolutions were flattened and thinned, the islands of Reil were completely destroyed, and the lower portions of both central convolutions were similarly affected. The large trunk ganglia at the base of the cyst could not be recognized. The resected plexus appeared normal.

A second opportunity for plexus resection was offered in a case of congenital hydrocephalus.

The patient was a poorly developed infant 5 months old. The circumference of the head was 56 cm. Cerebrospinal fluid was removed by puncture done first on the left side and a few days later on the right side. When trephination was performed in the right temporal region, the protruding brain broke open and discharged cerebrospinal fluid in a stream. The right lateral ventricle was enormously dilated. The choroid plexus was ligated and removed.

Death occurred seven days after the operation. Autopsy revealed dilatation of the fourth ventricle and status thymicolymphaticus. The plexus was very large and thick and showed enormous dilatation of the vessels, even of the capillaries. At several points there were blood lacunæ. STREISSLER (Z).

Cohn, E.: Gummata of the Hypophysis (Gummen der Hypophyse). *Arch. f. path. Anat.*, 1923, cxxl, 452.

The author reports a case of gummatus degeneration of the hypophysis involving the infundibulum and the optic chiasm and originating in the floor of the third ventricle. The patient was a 43-year-old woman who showed the clinical symptoms of tertiary

lues, later the initial stage of adiposo-genital dystrophy, and finally hypophyseal cachexia, and died following the sudden appearance of cerebral symptoms. Autopsy showed that all of the posterior lobe and most of the anterior lobe of the hypophysis had been destroyed by syphilitic granulation tissue with miliary caseous gummata.

This is the first case of hypophyseal gumma in which adiposo-genital dystrophy on a syphilitic basis was diagnosed clinically and confirmed by autopsy.

The author reviews the literature of the disease, discussing twenty-one cases, seventeen of acquired and four of congenital syphilis. Females are affected much more frequently than males, probably because of the burden placed upon the hypophysis during pregnancy. The anterior lobe appears to be particularly susceptible to the syphilitic virus. Hypophyseal gummata range in size from that of a small pea to that of a walnut.

The clinical diagnosis of hypophyseal lues is based upon the presence of acromegaly, adiposo-genital dystrophy, and hypophyseal cachexia. But the two former syndromes cannot be considered decisive in all cases. In acromegaly it is difficult to conceive of a syphilitic involvement of the anterior lobe in the form of an eosinophile adenoma which causes both an increase in the internal secretion and erosion of the pituitary fossa. The adiposo-genital dystrophy is generally, as in the case reported by Cohn, quickly overtaken by the hypophyseal cachexia caused by the rapidly advancing destruction of the hypophysis and therefore is of significance only in the early stages. BUDDE (Z).

Levison, L. A., and Alter, F. W.: Glioma of the Optic Thalamus. *Am. J. Ophthalm.*, 1923, 35, vi, 468.

Levison and Alter present a very complete case report with cuts showing the gross and microscopic anatomy of the tumor and one field of vision. The patient was a man 66 years old. The points of particular interest in the case were: (1) early hæmorrhagic retinitis of one eye followed suddenly a month later by choked disk; (2) complete external ophthalmoplegia of one eye with proptosis; (3) negative X-ray pictures; and (4) the absence of sensory symptoms, choriform movements, and tremor. THOMAS D. ALLEN, M.D.

Burhans, C. W., and Gerstenberger, H. J.: Internal Hæmorrhagic Pachymeningitis in Infancy: Report of Five Cases. *J. Am. M. Ass.*, 1923, lxxx, 604.

Internal hæmorrhagic pachymeningitis occurring in infancy cannot be considered a rare disease. The authors discuss the various theories advanced regarding its pathogenesis and report five cases treated in their own clinic within a period of three years. These cases do not bear out the contention that infections, especially syphilis and diphtheria, are causative factors or that a poor state of nutrition

plays an important rôle. The authors believe that in four of their five cases trauma was a factor.

The prominent signs of the disease are retinal hæmorrhages, fontanel puncture revealing bloody or yellow fluid in the subdural space, convulsions, a bulging fontanel, enlargement of the head, and nasal discharge.

Additional observations were made in two cases in which the calcium content of the fluid obtained through the fontanel puncture was determined and found to be decidedly lower than that of the blood serum, whereas the inorganic phosphorus content of the fluid and blood serum was practically the same. "Since the results are the same as the figures usually obtained by determinations on whole blood, it would seem logical to conclude that the fluid in these subdural cysts is blood unaltered except for the solution or digestion of all or part of the red blood corpuscles. This conclusion, however, is not supported by the amounts of sodium and potassium, which were the same as in serum, nor by the percentage of protein, which showed great variation."

The coagulation time and the bleeding time were normal in three cases in which the tests were performed.

WILLIAM E. SHACKLETON, M.D.

SPINAL CORD AND ITS COVERINGS

Viets, H. R.: Acute Ascending Meningomyelitis Possibly Resulting from Arspenamin Therapy. *Boston M. & S. J.*, 1923, clxxxviii, 895.

The case reported by the author seems to fall into the acute spreading myelitis group of Collier which is ascending in character and associated with definite meningeal involvement. It varied somewhat from other reported cases in its great rapidity of development and the completeness of the cord involvement. A possible etiological factor is suggested in an arspenamin reaction somewhat analogous to encephalitis hæmorrhagica. The possibility that the case was one of thecal hæmorrhage, spreading poliomyelitis, or acute ascending polyneuritis seemed to be ruled out by the history, its course, and the spinal fluid findings.

SAMUEL KAHN, M.D.

PERIPHERAL NERVES

Stookey, B.: Artificial Nerve Branches for the Innervation of Paralyzed Muscles. *Arch. Surg.*, 1923, vi, 731.

When a nerve trunk is injured at a level at which important muscular branches are given off, the muscles supplied by these branches are usually permanently paralyzed as there remains no path for the conduction of neuraxes from the nerve trunk to the muscle. The object of the author's research was to find a means of forming nerve branches artificially.

A method was found whereby a nerve trunk could be made to grow nerve branches at any level in its course and to supply any of the muscles which it

supplied formerly. Artificial nerve branches were made by using a free autogenous nerve transplant, preferably a small cutaneous nerve. The central end of this transplant was sutured into the nerve trunk and the distal end implanted directly into the muscle to be innervated.

In selecting the point on the nerve trunk for the suture of the artificial nerve branch, it would perhaps be preferable, on general physiological grounds, to choose a level near that at which the muscular branches came off formerly.

Five dogs were employed in the author's experiments. The first, a small black French poodle, died at the end of twenty-four days. The nerves on the inner side of the foreleg of the animal were exposed above the elbow in the usual manner. When the median nerve was traced, there seemed to be two branches, one on either side of the brachial artery. These were traced beneath the artery, where they united at the biceps tendon and passed in the direction taken by the median nerve. The dissection of the biceps was done to make sure that no branches entered from the median, ulnar, or musculospiral nerve. The ulnar nerve was isolated in the middle third of the arm, and an adjacent skin branch, 3 cm. long, was freed and cut after a waxed silk suture had been passed at either end.

The same technique was used in the experiments on the four other dogs. One of these animals died and the others were killed a certain number of days after the beginning of the experiments.

The author draws the following conclusions from his work:

1. When muscular branches are destroyed and nerve suture is impossible, paralyzed muscle may be innervated by the formation of an artificial nerve.

2. When a free nerve transplant is sutured to the nerve trunk and the distal end is implanted directly into the muscle, the free nerve transplant serves as a conduction path from the nerve trunk to the muscle.

3. An artificial nerve branch may be made for a muscle from a nerve trunk which normally supplies the muscle. If this nerve trunk is totally destroyed, a branch may be made from an adjacent nerve. Thus a muscle can be brought under the domain of a nerve which does not supply it normally; for example, the biceps may be supplied by an artificial branch from the musculocutaneous or, if the musculocutaneous is destroyed, it may be innervated by an artificial branch from the ulnar or median nerve.

4. Evidence that paralyzed muscles may be neurotized by an artificial nerve branch was shown by electrical stimulation of the artificial nerve branch which resulted in a rapid and quick contraction of the muscle, by the normal size and color of the muscle, and by the histologic findings which revealed normal striations in the muscle fibers. The presence of nerve branches and nerve fibers in the muscle thus innervated is conclusive evidence that neurotization has taken place.

GEORGE E. BEILBY, M.D.

Heyman, C. H.: The Stoffel Operation for Spastic Paralysis. *Surg., Gynec. & Obst.*, 1923, xxxvi, 613.

The value of any operative treatment for the relief of spastic paralysis cannot be determined without taking into account the degree of associated mental impairment. Whatever the mental condition, however, a good functional result may render the patient a more useful member of society and possibly may cause some mental improvement. The four clinical types—spastic diplegia, spastic paraplegia, spastic hemiplegia, and spastic monoplegia—present a descending scale of mental impairment.

The author gives the Tubby etiological classification of spastic paralysis and reviews the limitations of, and indications for, various procedures which have been employed in this condition, such as tenotomy, tendon transplantation, resection of posterior nerve roots, cranial decompression, the injection of alcohol into the nerve, and intra-perineural neurotomy. The so-called Stoffel operation appeals because of its simplicity, the exact dosage possible, the slight likelihood of a recurrence of the contracture, and the absence of a consequent disturbance of sensation.

This operation utilizes the anatomical facts that the cross-sectional topography of a nerve is unvarying, the motor fibers are arranged in gross bundles at the periphery, and the muscular destination of these bundles is unvarying. Partial section of a given bundle will cause a flaccid paralysis of the corresponding elements of the muscle, leaving the remainder in a spastic condition. If the residual spasticity is correctly estimated when the nerve is sectioned the equilibrium with the opposing muscles will be restored.

The author has performed fifty-nine such operations in twenty-four cases, employing the median, sciatic, obturator, and internal popliteal nerves. He

reviews the technique of nerve isolation in these four groups of cases and discusses the degree of sectioning necessary on the basis of the degree of spasticity. He concludes that the operation is of greatest value in spastic contractures of the adductors and spastic equinus.

Brief reports of the twenty-four cases are given.

P. R. BILLINGSLEY, M.D.

SYMPATHETIC NERVES

Ford, R. K.: A Note on the Treatment of Chronic Ulceration of the Lower Extremities. *Lancet*, 1923, cciv, 1005.

Chronic non-specific ulceration of the legs and feet is disabling and requires prolonged treatment. Increased circulation to the extremity favors healing. Leriche employed arterial sympathectomy in the treatment of Raynaud's disease, trophic ulcer, etc. Handley obtained the same but more permanent results by injecting alcohol into the vessel wall.

The author suggests the use of alcohol injections in all cases of chronic ulceration of the leg to increase the peripheral circulation and promote healing.

A case reported was that of a 52-year-old man who was admitted to the hospital with a chronic ulceration of the right ankle and the dorsum of the right foot of several months' duration. After the ulcers had been soaked in normal salt solution for a period of ten days to remove the crusts, discharge, etc., the common femoral artery was exposed under chloroform anæsthesia and its wall injected in each quadrant of its circumference with 5 per cent eucaine solution, about 0.5 c.cm. being used in all. The dressings were left undisturbed for four days. At the end of that time all superficial ulceration had healed. The patient was discharged cured in two weeks.

WILLIAM J. PICKETT, M.D.

SURGERY OF THE CHEST

CHEST WALL AND BREAST

Rowntree, C.: *Cancer of the Breast. Brit. M. J.*, 1923, i, 747.

Cancers of the breast constitute one-third of all cancers occurring in the female. If an early operation is performed, there will be no recurrence in 30 per cent of the cases. In the remaining 70 per cent a well-planned radical operation will generally relieve discomfort and prolong life, but the patient will eventually die of a metastasis.

If the results of the treatment of carcinoma are to be improved, persons with cancer must consult the physician earlier, physicians must be more positive in their diagnosis, and operation must be performed at once by a competent surgeon. The laity can be instructed regarding cancer, through the medium of the public schools, by pamphlets and leaflets similar to those issued by the Cancer League, and by newspaper publicity.

Because cancer of the breast is painless and harmless in appearance in the early stages, the diagnosis is often delayed or missed altogether until too late. Tiny cysts, adenomata, and cancers of the breast are so similar to one another that mistakes are made by the best diagnosticians and surgeons. A hypodermic needle inserted in a cyst will determine its nature, but in most cases the only positive method of differentiating an adenoma from a carcinoma is microscopic examination. A point not usually brought out in the early diagnosis of malignancy is an almost imperceptible adhesion to the skin. In its earliest stages this can be made to appear by grasping the breast on each side of the suspicious area.

Of 100 of the author's consecutive cases of breast tumor, fifty-nine were malignant and forty-one non-malignant. Doubtful tumors of the breast should always be considered malignant until proved otherwise. As only fifteen of these 100 cases revealed mastitis, the author believes that mastitis is not a cause of cancer and does not call for amputation of the breast unless there is extensive cystic formation.

The proper treatment of breast carcinoma is radical removal. As a rule the best anæsthetic is ether combined with chloroform vapor. In the cases of old or feeble women, local anæsthesia is best.

Radium is useless in all forms of breast carcinoma and in many other forms of malignancy. In the X-ray we have a valuable means of relieving pain and prolonging life. In the author's opinion, the deep therapy machines are little or no better than other roentgen-ray machines.

PAUL W. SWEET, M.D.

TRACHEA, LUNGS, AND PLEURA

Leb, A.: *Pulmonary Embolism Following the Filling of a Fistula with Beck's Bismuth Paste* (Lungenembolie nach Fistelfuellung mit Beck'scher Wismutpaste). *Beitr. z. klin. Chir.*, 1923, cxxviii, 515.

The case reported, which was observed at the Hacker clinic, was that of a woman 24 years old who had been subjected to thyroidectomy seven weeks previously. Ten cubic centimeters of 30 per cent Beck's paste of bismuth carbonate were injected under moderate pressure into a residual fistula after curetting of the tract. The patient immediately collapsed.

The X-ray showed emboli in both lungs in the region of the pulmonary artery. After the fifteenth day these began to disappear. When the patient was discharged on the thirty-eighth day, the shadow in the lung had disappeared almost completely.

The author assumes that as a result of the curettage of the fistulous tract the paste entered the veins, reached the right side of the heart, and from there entered the lesser circulation, where it became lodged. Recovery resulted because only a slight amount of the material was injected.

This case shows that in the filling of fistulæ Beck's paste must be used with the greatest care. Injury of the fistulous tract and the use of pointed tips should be avoided.

COLMERS (Z).

Heuer, G. J.: *Lung Abscess. Minnesota Med.*, 1923, vi, 279.

From the standpoint of etiology, lung abscesses may be divided into the following groups: (1) those secondary to tonsillectomy; (2) those secondary to the aspiration of a foreign body; (3) those secondary to infectious processes elsewhere; (4) those secondary to surgical operations; (5) those secondary to benign or malignant strictures of the œsophagus, trachea, or bronchi with perforation; and (6) those secondary to pneumonia.

At present it is believed by the majority of general surgeons that tonsillectomy is the most frequent cause of lung abscess. As a rule in such cases the abscess is due to the aspiration of infected blood or particles from the tonsils. Nose and throat specialists regard embolism with infarction through the blood and lymph streams as the most frequent cause. The type of anæsthesia is an important factor. The great majority of lung abscesses follow tonsillectomy performed under general anæsthesia. Therefore this is a problem of preventive surgery. The elimination of general anæsthesia would eliminate the greater number of lung abscesses, but not

all. Students planning to do nose and throat work should have sufficient training in general surgery to make them familiar with surgical pathology, surgical technique, and the control of hæmorrhage.

A study of the literature indicates that the aspiration of teeth, kernels of grain, and other foreign bodies is a frequent cause of lung abscess. Preventive measures should be taken against the aspiration of foreign bodies, and those that have been aspirated should be removed promptly. A patient who has aspirated a foreign body should be subjected to a bronchoscopic examination as soon as possible.

Lung abscesses secondary to infectious processes elsewhere, such as liver abscesses, appendicitis, mastoiditis, etc., also have their preventive aspect in the way of early diagnosis and prompt treatment.

Lung abscesses secondary to clean surgical operations such as gastro-enterostomy, herniotomy, and thyroidectomy are not rare, and are complications justly to be feared. The mechanism of their production is varied. Some are due to the aspiration of saliva or vomitus. The basic lesion is either a bronchopneumonia or infarct which subsequently undergoes abscess formation. Preventive measures in these cases should be directed toward the careful administration of the anæsthetic, gentle handling of the tissues, and greater attention to postoperative treatment.

Relatively few cases of lung abscesses are due to malignant disease, stricture and other conditions of the œsophagus, and malignancy of the bronchi. These primary conditions are very serious and the diagnosis is often made late. Care should be exercised in dilating benign lesions of the œsophagus.

Formerly pneumonia was considered the most frequent cause of lung abscess. Preventive measures in cases of pneumonia must be outlined by the internists.

Lung abscess may occur as a single or a multiple lesion, the incidence of the two types being approximately the same. Multiple lung abscesses are more difficult to diagnose, resist medical and surgical treatment, and are especially prone to occur following infectious processes elsewhere.

Advances have been made in the diagnosis and localization of abscesses. An accurate history, the findings of a careful physical examination, the cough, and the character of the sputum are of great significance. The X-ray, and especially stereoscopic X-ray plates, have contributed to the diagnosis and localization. The use of the bronchoscope is also of great aid.

Bronchiectasis and tuberculosis must be differentiated carefully as to operate on these cases when the lesion has been diagnosed as simple abscess is harmful.

About one-third of all lung abscesses heal spontaneously, but an acute abscess may become chronic and then will be far more difficult to cure. A supposed lung abscess should not be treated expectantly longer than from six to eight weeks.

Artificial pneumothorax has been employed by various surgeons with varying results. Although this method has a certain field of usefulness, it is not applicable in the presence of adhesions between the visceral and parietal pleuræ or in the presence of a rigid abscess wall. It is of value as a diagnostic measure and as indicating the advisability of a one- or a two-stage operation.

Surgical drainage gives the best results in cases of single abscess in the acute stage. When there is accurate localization in such cases surgical treatment will result in a cure in from 75 to 80 per cent. The mortality is from 5 to 10 per cent.

Thoracoplastic operations are indicated in certain cases in which simple drainage and compression operations have failed. Procedures of this type are divided into two groups: (1) those which collapse and obliterate the abscess cavity, and (2) those which exteriorize the abscess cavity and cover its presenting surface with skin flaps or grafts.

Bronchoscopic irrigation of the abscess cavities is a palliative measure in cases of chronic abscess, but is not a curative method. Lobectomy should be considered only in those cases of lung abscess which have resisted other methods of treatment.

The author summarizes his experience in sixty-two cases of lung abscess. In fourteen of these the condition was found at autopsy. In forty-three of the remaining cases forty-five operations were done with a mortality of 28.8 per cent. The autopsy reports in eleven cases are given and the results in the thirty-five patients who survived are reviewed.

MERLE R. HOON, M.D.

Sante, L. R.: A Study of Lung Abscess by Serial Radiographic Examination. *J. Radiol.*, 1923, iv, 183.

In this article Sante reports the study of forty-five cases of lung abscess.

Lung abscess he defines as an acute inflammatory disintegration occurring within the lung and involving the lung substance itself as a result of the invasion of pyogenic organisms. This excludes abscesses due to the tubercle bacillus and all suppurative processes of the pleural cavity such as general or localized empyema and small collections of pus associated with a serofibrinous plastic pleurisy. Such a condition presupposes an area of consolidation in the lung as a barrier to the invading organisms, and in this respect all abscesses may be considered as post-pneumonic consolidations thrown out to limit a pyogenic infection similar to a like process occurring elsewhere in the body. In this paper, however, the term "pneumonia" is confined to the acute consolidations of the lung commonly understood by this term, namely, bronchopneumonia and lobar pneumonia.

In the series of cases studied there were six in which the abscess developed as a postoperative complication. In two, the condition followed tonsillectomy, in one a herniotomy, in one an appendectomy, in one a cholecystectomy, and in one

the rupture of the gall-bladder. The case chosen to represent this group was first examined with the X-ray on the sixth day after tonsillectomy. At this time the consolidation was confined to the region of the hilum. Subsequent observations revealed rapid extension of the process toward the periphery. Soon after the onset an area of rarefaction was observed in the midst of the consolidation. Such an area may be seen at one examination and not detected in subsequent plates. It may be seen regardless of whether the abscess cavity has ruptured into the bronchus or not.

The radiographic findings were similar in all of the cases in this group. In the author's opinion the cause of the condition must be some other factor than aspiration of infectious material at the time of operation. While lowered resistance of the bronchial mucous membrane associated with the repeated aspiration of infectious material will explain some cases, in those in which the abscess develops six weeks or ten months after the operation there must be an added factor.

One case was examined within twenty-four hours after severe exposure to cold. Prior to the exposure the patient was apparently in perfect health. The X-ray revealed the characteristic findings. Rupture of the abscess, which occurred on the sixth day, was followed by recovery.

In two cases the condition followed typical influenza in which there was no intercurrent pneumonia.

An abscess developed without apparent cause in eight cases. The initial symptoms were pain in the chest, dyspnoea, fever, chilly sensations, and a chill followed by profuse sweating. The X-ray findings were as described, and the area of consolidation rapidly receded following rupture and drainage of the abscess.

An apparent clinical cure is not an absolute cure. Occasionally there is a recurrence associated with the formation of multiple abscesses.

A striking similarity was exhibited by the cases reviewed. The X-ray evidence seemed to indicate that they all represented invasion by way of the bronchi and that in all of them the condition began as a consolidation at the hilum and progressed peripherally. An area of rarefaction is often shown early in the disease. At this stage rupture and evacuation into the bronchus or into the pleural cavity may occur.

Of another group of thirteen cases, seven followed lobar pneumonia and in six the condition was associated with bronchopneumonia. These may be considered as of respiratory origin. In lobar pneumonia the disease is limited to one or more lobes. The temperature may fall by crisis only to rise again after a short interval, or it may not fall by crisis but gradually assume a septic type. In either event the consolidated area persists, at least in its central portion, and later an abscess cavity appears in its midst. In broncho-pneumonia the small peribronchial infiltrations become necrotic and form

small abscesses which coalesce to form larger abscesses in the mid-lung portion.

Two cases of lung abscess were of hæmatogenous origin associated with general septicæmia. There were also three cases in which the condition resulted from regional lymphatic drainage from a septic process, and one case of direct extension of an infectious process into the interstitial tissues of the lung following rupture of the œsophagus by malignancy.

In eight of the cases the histories were so indecisive that classification was impossible.

In seven of the forty-five cases there was involvement of the lower right lung. No particular type of involvement showed any special predisposition to spontaneous cure. Clinically, a patient may appear completely cured while the X-ray examination reveals remaining disease which represents a potentially grave condition. Any remaining pathologic process is an important factor for the rapid re-infection of the remaining lung.

The author's conclusions are summarized briefly as follows:

The cause of lung abscess may enter the lung by the respiratory system following some condition in which the local or general resistance is lowered or following lobar or broncho-pneumonia. It may enter it also by the blood stream from a septic process elsewhere in the body, by invasion through the lymphatics and suppuration of the regional lymph nodes due to drainage of a septic process, and by direct extension from the interjection of infected material into the interstitial tissues of the lung as a result of destruction of the œsophageal wall.

McMICKEN HANCHETT, M.D.

Beye, H. L.: Empyema, an Analysis of 100 Cases in Relation to Treatment. *Minnesota Med.*, 1923, vi, 401.

The author groups all cases of empyema coming on the service within two months of the onset of the condition as cases of acute empyema.

In the cases reviewed, the empyema followed lobar pneumonia in 56 per cent and influenza in 36 per cent. The number of leucocytes averaged 20,200.

In cases of primary disease which does not clear up with a change in the chest findings, the X-ray is of great assistance in the diagnosis, but does not always show the empyema. Aspiration with a needle is also of diagnostic aid and should be done early. The character of the fluid and the type of organism are of importance in the choice of treatment.

The old belief that immediate operation should be done for empyema was abandoned during the influenza epidemic. As a rule, however, a pneumococcus empyema should be drained as soon as it is diagnosed. In early streptococcic empyema, aspiration is the treatment of choice and may be repeated. Drainage is usually necessary later.

Nitrous oxide is the anæsthetic of choice unless it is contra-indicated.

Pus should be demonstrated by aspiration at the time of the operation, and the needle kept in the cavity.

Intercostal drainage should be reserved for very severe cases. Rib resection is the operation of choice. Closed drainage was done in ten cases. It usually becomes open in a short time.

Drainage should be provided at the most dependent portion of the cavity, which in recumbent patients is usually the posterior portion of the cavity.

In the cases reviewed, irrigation with Dakin's fluid was used routinely with success. This helps to dissolve the fibrin and lessens the symptoms of infection. Bottle-blowing and lung exercises were also included in the postoperative treatment. The drainage tubes were shortened early so that they passed only through the thickness of the chest wall, but were not dispensed with until the cavity was practically obliterated.

In two cases the peritoneum was opened. Care must be taken in the low drainage cases to prevent this mishap. Seventy-six per cent of the cases were apparently permanently cured.

In the cases of chronic empyema the condition was caused by influenza in 46 per cent and by lobar pneumonia in 26 per cent. Most of the patients were in the fourth decade of life. Seventeen of the fifty cases had not been diagnosed until the process had been present from two to twelve months. Thirty-one cases had been operated upon previously. In two, rubber drainage tubes were found. In one case previously diagnosed as empyema and operated upon, the condition was found to be a dermoid cyst. The causes for the failure of the previous operation to effect a cure were: (1) failure to drain at the dependent point, (2) too early removal of the tube, (3) early drainage of a streptococcus infection of influenza, (4) greatly delayed drainage of a large pus collection, (5) a bronchial fistula.

Forty of the fifty cases were drained by rib resection. Four were not operated upon. Thirty-seven were apparently cured. In eight cases drainage was established at two points; all of these patients progressed well. Irrigation with Dakin's solution in the after-treatment was more successful than in the acute cases.

Plastic operations were done in six cases, but were for the most part unsuccessful.

A bronchial fistula tends to close if the empyema is adequately drained. MARCUS H. HOBART, M.D.

Cameron, H. C., and Osman, A. A.: Empyema in the First Two Years of Life, with a Discussion of the Value of Immediate Resection of Rib. *Lancet*, 1923, cciv, 1097.

The authors report on fifty-two cases of empyema in children under 2 years of age. Thirteen of the patients recovered and thirty-nine died. The cases are classified into two groups. Group 1 included those in which the empyema developed after the pneumonia and the temperature curve of the empy-

ema was separate and distinct from that due to the pneumonia. These are called "meta-pneumonic" empyemas. The second group included the cases in which one temperature curve was superimposed upon the other as the empyema developed before the pneumonia had abated. These are called cases of "syn-pneumonic" empyema.

Of the thirteen cases in which recovery resulted, twelve were of the meta-pneumonic type. Of the thirty-nine which were fatal, thirty-four were of the syn-pneumonic type and five were not grouped because of deficiencies in the records which made definite grouping impossible.

Of the thirty-nine patients who died, twenty died following rib resection and drainage. The twelve cases of the meta-pneumonic type and the one case of the syn-pneumonic type in which recovery resulted were also treated by rib resection and drainage.

In the authors' opinion, all meta-pneumonic cases should be subjected to operation as soon as the pneumonia has subsided. The operation of choice is rib resection. Cases of syn-pneumonic empyema should be treated by repeated aspiration and, if necessary, closed drainage.

RALPH B. BETTMAN, M.D.

HEART AND PERICARDIUM

Salmond, R. W. A.: Artificial Pneumopericardium. *Arch. Radiol. & Electrotherapy*, 1923, xxviii, 20.

In a case with repeated large effusions in the pericardium in which paracentesis was performed at intervals, air accidentally entered the pericardial sac after one of the tapplings and permitted the visualization of a tumor mass which had been obscured on previous roentgen examinations. The patient was subsequently operated upon and the tumor found to be a large cyst which was closely adherent to the upper left aspect of the pericardium and had been leaking into the pericardium.

While the case described is no doubt exceptional, the author believes that in certain suitable cases the artificial introduction of air or other gas into the pericardium might be of great diagnostic aid. The case reported would have almost certainly terminated fatally if the cyst had not been revealed by the roentgen rays and successfully removed.

ADOLPH HARTUNG, M.D.

Gamberini, C.: Pericardiectomy for Purulent Pericarditis (Pericardiectomy per pericardite purulenta). *Arch. ital. di chir.*, 1923, vi, 619.

Gamberini reports a case of purulent pericarditis in a boy 7 years old in which, after punctures had failed, he did a pericardiectomy with drainage. Except for slight thoracic deformity the results were excellent.

Puncture is indicated in cases of indolent serous effusions of the pericardium, but when the effusion is secondary to some cause which cannot be removed pericardiectomy is better.

In acute serous pericarditis puncture can be used, but in the chronic types it is best to do a pericardiotomy, leaving the pericardium open and closing the thoracic walls.

Puncture is commonly used in hæmopericardium, but in serous effusion of tuberculous origin the best results are obtained by pericardiotomy.

In purulent pericarditis puncture is absolutely contra-indicated except as a preliminary to the operative stage. The mortality of puncture in these cases is almost 100 per cent, while pericardiotomy is followed by recovery in from 47 to 63 per cent of the cases.

W. A. BRENNAN.

ŒSOPHAGUS AND MEDIASTINUM

Bullrich, R. A.: A Causative Factor in Cancer of the Œsophagus (Nueva nota sobre un factor determinante del cáncer del esófago). *Semana méd.*, 1923, xxx, 683.

Bullrich finds that cancer of the Œsophagus is particularly frequent in the Argentine Republic and that it occurs with but few exceptions in the upper third of the tube, the zone most exposed to injury. He believes the cause is the drinking of hot fluids such as the national beverage, mate. He discusses the irritation theory of cancer and in this connection refers to an article by W. J. Mayo in which hot drinks are mentioned as a cause of duodenal ulcer.

W. A. BRENNAN.

MISCELLANEOUS

Pisanò, G.: Subphrenic Abscess (Contributo a la conoscenza degli ascessi subfrenici). *Policlín.*, Rome, 1923, xxx, sez. chir., 74.

Pisanò classifies subphrenic abscess into the abdominal (antero-inferior), the thoracic (antero-superior), and the lumbo-retroperitoneal types.

The thoracic type of subphrenic abscess almost always causes respiratory pain, dyspnoea, and

cough, and often a pleural reaction. The dyspnoea is never severe. Pressure on the supraclavicular fossa on the side of the purulent collection is sometimes painful. At the level of the lower intercostal spaces there is subjective and provoked pain. The respiratory excursions on the side affected are limited, and the lung exhibits symptoms of compression. The heart may be displaced, and the area of dullness may be greatly increased.

In the abdominal type of abscess a painful tumefaction is found in the hypochondrium and there is pain radiating to the shoulders and the epigastrium. Respiratory symptoms are absent. Vomiting and contraction of the abdominal muscles occur. On the affected side the diaphragm is immobile.

Cases of the lumbar type of abscess are characterized by spontaneous and provoked pain in the lumbar region, a more or less diffuse tumefaction, and immobility of the diaphragm.

The local symptoms mentioned are present in addition to the general symptoms of fever, etc., but the entire syndrome offers nothing especially characteristic and the diagnosis must depend to a great extent on the exclusion of other conditions.

The mortality, which ranges from 20 to 37 per cent in the cases operated upon, can be improved only by early intervention. The indication for early operation is the presence of pus.

Pisanò gives the clinical histories of three cases. In the first and third, the abscess was extraperitoneal and in the left lumbar region, while in the second it was intraperitoneal and between the liver and diaphragm. In the first case the etiological factor was an acute osteomyelitis of the left transverse process of the first lumbar vertebra. In the second and third cases the condition was due to trauma. The first case was diagnosed as a paranephritic retroperitoneal abscess; the second, as a hepatic abscess; and the third, as a retroperitoneal abscess on the left side. All three patients made a good recovery.

W. A. BRENNAN.

SURGERY OF THE ABDOMEN

ABDOMINAL WALL AND PERITONEUM

Becker, A.: The Treatment of Gangrenous Femoral Hernia (Ein Beitrag zur Behandlung der gangraenosen Schenkelhernie). *Deutsche Ztschr. f. Chir.*, 1922, clxxvi, 281.

The author reports thirty-six cases of gangrenous femoral hernia operated upon during the past ten years. In twenty-four, the gangrenous gut was treated at the site of the hernia; in seventeen in which the gut was resected there were four deaths; in three with gangrene at the groove of constriction closure was effected by suture with one death; and in two in which suturing and anastomosis were done there was one death. In two cases prolapse of the incarcerated loop occurred. In twelve cases, laparotomy was performed above Poupart's ligament: resection of the gut in four, closure by suturing and entero-anastomosis in one, entero-anastomosis without removal of the incarcerated gut from the hernial opening in five, operation discontinued because of hopeless peritonitis in two. The author comes to the following conclusions:

1. The treatment of gangrene at the site of the hernia should be attempted only when, without division of Poupart's ligament, the incarcerated loop of gut can be brought forward sufficiently to allow the necessary procedure to be carried on in full view and in healthy tissue. In all other cases it is safer to approach intestinal loops running to and from the femoral hernia through an abdominal incision.

2. Closing off the gangrenous portion by suturing is of value only when it is certain that no disturbance of the nutrition of the intestinal wall will result, especially in the proximal portion of the gut.

3. The radical operation is dangerous if there is the slightest indication of infection of the serous fluid in the sac.

COLMERS (Z).

Burckhardt, H.: Biliary Peritonitis Without Perforation (Perforationslose Gallenperitonitis). *Beitr. z. klin. Chir.*, 1923, cxxviii, 209.

After numerous experiments on animals Burckhardt concludes that it has not yet been possible to demonstrate a true transudation of bile or a biliary peritonitis without perforation. All experiments have shown that a wound of the gall-bladder, and even a wound involving both the gall-bladder and the common duct, heals very quickly. Therefore the assumption is justified that in cases of biliary peritonitis the perforation in the biliary tract may not be found at operation or autopsy as it may have become healed. When the transudate does not have the appearance of bile but is a yellow, brownish, or greenish exudate, the condition should not be called

biliary peritonitis or biliary transudate as it does not differ essentially from the peritoneal changes and exudates which have their origin in organs other than the biliary tract.

At operation, if the patient's condition will allow it, a quick examination of the biliary tract for possible perforation should be made. This should include the liver, particularly its under-surface. Pressure should be made upon the gall-bladder and the common duct to determine whether bile flows out at any point.

If no perforation is discovered, the gall-bladder should be drained in order to prevent a possible bile stasis. Cholecystectomy is usually contra-indicated because of the patient's poor condition. When very great haste is necessary and no perforation is found, the operation may be limited to simple drainage of the porta of the liver.

HOHMEIER (Z).

Vital Aza: A Solid Tumor of the Mesentery: Extirpation, Cure (Tumor solido de mesenterio: extirpación radical; curación). *Prog. de la clín.*, Madrid, 1923, xxv, 321.

The case reported was that of a woman 52 years old. The symptoms were abdominal distention, slight pain in the peri-umbilical zone, persistent straining followed at times by diarrhoea, and varices of the left leg. The clinical diagnosis was voluminous ovarian cyst with intestinal adhesions. At laparotomy the tumor was extirpated without great difficulty and the cavity tamponed. The patient made a rapid recovery.

The extirpated tumor weighed 4 kilos, 220 gm. Histologic examination showed no tendency to sarcomatous or epithelial degeneration. The patient was still well eight months after the operation.

W. A. BRENNAN.

GASTRO-INTESTINAL TRACT

Forssell, G.: Studies of the Mechanism of Movement of the Mucous Membrane of the Digestive Tract. *Am. J. Roentgenol.*, 1923, x, 87.

The folds of the mucous membrane of the stomach are supposed to be caused by a passive folding-in due to contraction of the muscular coat (muscularis propria). Some of the folds of the mucous membrane of the intestine are attributed to the same cause but others are believed to be permanent anatomical structures. Forssell proved that this prevailing opinion is not correct as anatomical preparations and roentgenograms and photographs of the digestive tract of living beings demonstrate that the folds of the mucous membrane of the alimentary canal are formed by active movements of the mucous membrane itself.

Although the relief of the mucous membrane may vary in high degree in every part of the digestive canal, it is clear that the membrane in these parts has a certain tendency to form contraction-forms typical for the part. In the mucous membrane forms in the lesser curvature of the stomach there are no transverse folds even with the greatest shortening, the folds being longitudinal and the surface mammillated. The jejunum has a greater tendency to form a high and complicated relief of mucous membrane than the ileum, and the relief of the mucous membrane in the bulbus duodeni is of a different type from that of the folds in the other intestines. The motor forces of the mucous membrane are found, not in the muscular coat (*muscularis propria*) which models the exterior form and width of the digestive tube, but in the *muscularis mucosæ*.

The mass of the mucous membrane and the volume of its folds are probably regulated by variations in the filling of the vessels, while the number, position, and form of the folds are determined by the muscular system in the *muscularis mucosæ*.

The high and close folding of the mucous membrane may occur more easily with a simultaneous contraction of the muscular coat (*membrana propria*), but a definite degree of contraction of the muscular coat does not produce a definite corresponding relief of the mucous membrane; on the contrary, a stage of contraction producing a certain width of the muscular tube may be associated with a relief of the mucous membrane varying from an even surface to a very complicated folding.

According to the present general opinion, the folds of the mucous membrane have an exclusively passive function, that of enlarging the digestive surface and preventing a too rapid flow of the intestinal contents. The knowledge that they are not passive structures, but represent a momentary state of movement, must involve a new appreciation of their function. It is apparent that the complicated relief of the intestinal mucous membrane forms not only a passive depository for the digestion and resorption of food, but also a mechanism with a subtle and wonderful organization for regulating the chemistry of digestion. The muscular tube of the digestive tract and the special motor mechanism of the mucous membrane collaborate in the mechanism of digestion. ADOLPH HARTUNG, M.D.

Lucas, W. P.: The Diagnosis and Treatment of Pyloric Stenosis. *Med. Clin. N. Am.*, 1923, vi, 1393.

Lucas presents the following case history as the basis for an excellent discussion of hypertrophic pyloric stenosis:

The patient was a full-term, normally delivered baby weighing 6 lb., 7 oz. Regurgitation of its feedings began the second day after birth. The following four days the vomiting increased but was not projectile in type. Ultimately everything taken was expelled.

A hypodermoclysis of 50 c.cm. of salt solution and 50 c.cm. of a 10 per cent glucose solution was given into the longitudinal sinus, and the stomach was lavaged. On the tenth day after birth, projectile vomiting appeared and reverse peristalsis was noted. An X-ray examination revealed the bismuth in the stomach four hours after its ingestion; none had passed the pylorus.

A Fredet-Rammstedt operation was performed the following day. The pyloric ring was found thickened, grayish white, and of cartilaginous consistency. The operation required thirty minutes. One hundred cubic centimeters of Ringer's solution were left in the peritoneal cavity.

Four hours after the operation sterile water was given by mouth. The vomiting still persisted. Another hypodermoclysis of salt solution and glucose into the longitudinal sinus was then given. The second day after the operation fluids were introduced into the stomach by the Murphy drip through a small catheter. The following day normal breast feedings were resumed and well tolerated. Convalescence was uneventful.

In 1777 Armstrong published the first report on pyloric obstruction. Hirschsprung in 1887 reported five cases at a meeting of the German Pediatric Society. The condition is generally attributed to a spasm of the pyloric sphincter causing muscular hypertrophy of the circular fibers of the ring or to congenital hypertrophy of the muscular fibers of the sphincter. It occurs in from 1 to 4 per cent of infants. Eighty per cent of the cases are those of males. The condition is most common in the third or fourth week of life.

Presumably, the child is born with a congenital defect of the sphincter muscle. The pylorus is thickened and cartilaginous, and has a redundant mucosa. The irritation occasioned by food passing through the canal sets up a mucosal oedema which in turn causes an irritative spasm of the sphincter muscle.

The essential symptom is vomiting, which may be either gradual or abrupt in onset and occurs immediately after feeding. Projectile vomiting and later reverse peristalsis with gastric dilatation are pathognomonic of pyloric stenosis. Roentgen-ray examination with a bismuth meal and gastric lavage are often aids in estimating the degree of obstruction. Weight loss follows the continued vomiting and the stools appear meconium-like, consisting mainly of bile, mucus, and intestinal detritus. With this combination of symptoms the diagnosis is easy. Regurgitation and vomiting caused in the newborn by air ingestion, irregular feeding, and overfeeding are usually corrected easily. Projectile vomiting, weight loss, and meconium stools never follow the simple irritative conditions.

The author believes that in early cases it is justifiable to try modern methods of infant feeding as most cases of spasm will be corrected by atropin treatment in conjunction with the feeding of thick

cereals. The administration of 1/400 gr. of atropin one-half hour before feeding should be followed by gastric lavage with a weak sodium bicarbonate solution. A feeding of 2 or 3 oz. of 16 per cent fine rice gruel mixed with an equal quantity of breast milk may be given through a nipple every three or four hours. Hot applications to the abdomen may help to reduce the spasm. The infant must be given sufficient water and its weight carefully watched. If vomiting persists, the feedings should not be continued for more than one or two days, especially if the stenosis occurs in the first week of life.

In the operative treatment the Fredet-Rammstedt operation has been found much superior to the old gastro-enterostomy which carried a mortality of about 40 per cent. Considering all cases, both early and late, the average mortality of the Fredet-Rammstedt procedure is from 18 to 20 per cent but is practically nil if the operation is done within one week of the first projectile vomiting. The advantages of early operation consist in the reduction of postoperative shock, better wound healing, decreased danger of sudden death, and the prevention of secondary peritonitis. Postoperative feedings are greatly simplified. The results of few surgical conditions depend so largely on the skill and rapidity of the surgeon.

After the operation the child should be placed in a semi-erect position, feedings should be begun four hours later, and dehydration should be prevented by hypodermoclysis. After three or four days the child should be put to the breast and will nurse in the normal way. JOHN W. NUZUM, M.D.

Cutler, E. C., and Newton, F. C.: Perforated Ulcer of the Stomach and Duodenum. *Boston M. & S. J.*, 1923, clxxxviii, 789.

The late results indicate that the best treatment of perforated ulcer of the stomach is gastro-enterostomy with closure of the ulcer.

Perforation, especially in duodenal ulcer, occurs more frequently in males than in females.

In most cases a history of indigestion or other abdominal complaint is given, but in some the perforation is the first sign of ulcer.

The interval of time elapsing between the perforation and operation is of great importance in the prognosis. Recovery results in most of the cases operated upon before twenty-four hours. In those in which recovery results when operation is performed later the ulcer is usually of the walled-off variety.

Gastro-enterostomy apparently does not increase the risk whatever the time interval, and the convalescence following this operation is less stormy than that in cases treated by simple suture. The late results are also more satisfactory and the secondary operation is unnecessary.

In any case under twenty-four hours old a gastro-enterostomy is advisable unless it is contra-indicated by some special condition.

MARCUS H. HOBART, M.D.

Downes, W. A.: Hour-Glass Contraction of the Stomach. *Surg. Clin. N. Am.*, 1923, iii, 343.

Downes reports a case of hour-glass contracture of the stomach due to a penetrating ulcer on the lesser curvature. As the patient's condition was very poor, the simplest operation that would meet the requirements was desirable. A gastro-gastrotomy of the anterior walls of both pouches and a pyloroplasty by Finney's method were done. The patient was discharged from the hospital on the twenty-eighth day.

In conclusion the author states that the ideal operation in this condition, if the patient's condition will permit it, is resection of the stomach.

I. EDWARD BISHKOW, M.D.

Nielsen, N. A. The Results of the Medical Treatment of Gastric and Duodenal Ulcer. *Acta. med. Scand.*, 1923, lviii, 1.

In the cases reviewed the diagnosis of ulcer was based on the occurrence of hæmatemesis, the presence of an hour-glass contraction, or the findings of an exploratory operation together with the other characteristic symptoms and signs of the lesion. The patients have been under observation for periods ranging from two and one-half to twenty years. During this time no symptoms of other diseases which might cause hæmatemesis or melæna have been noted. The ultimate result in 75 per cent of the cases is known.

It was found that when a patient suffering from gastric ulcer became symptom-free as the result of treatment and developed a recurrence later, the recurrence appeared before the lapse of three months in one-third of the cases and before six months in one-half. The frequency of recurrence decreases considerably in cases which pass safely into the second year, and at the end of the second year suddenly decreases markedly.

The relationship between the duration of the symptoms before the treatment and the patient's condition after the treatment is shown in the following table:

RELATIONSHIP OF DURATION OF SYMPTOMS TO RESULTS

Duration of symptoms before treatment. Years	Permanently cured. Per cent	Permanently cured after relapse. Per cent	Total permanently cured. Per cent	Improved. Per cent	Permanently cured or improved. Per cent	Poor results. Per cent
—½	60.0	0.0	60.0	16.7	76.7	23.3
½ to 1	33.3	20.8	54.1	16.7	70.8	29.2
1 to 3	26.3	10.6	36.9	21.0	57.9	42.1
3 to 5	20.7	0.0	20.0	26.7	46.7	53.3
5 to 10	2.7	8.1	10.8	10.8	21.6	78.4
10+	5.3	0.0	5.3	17.6	22.9	77.1

It is seen that the percentage of those permanently cured by treatment, plus those permanently cured after a relapse, decreased as the duration of the

symptoms increased, and that the percentage of cases benefited was not influenced by the duration of the symptoms before treatment. The percentage of poor results increased with the duration of the symptoms.

The location of the ulcer, the type of symptoms, the prolongation of the treatment for a longer period of time, and the manner in which the ulcer reacted to the treatment seemed to have no relationship to the subsequent course.

As ulcers near the pylorus cause the more severe symptoms on relapse, it is probably best to treat them surgically, whereas ulcers of the corpus, which cause only mild symptoms on relapse, are best treated medically.

The author states that it is doubtful whether there is any danger of cancerous degeneration of the ulcer; that at any rate, it is so slight as to be of no practical importance. Perforation and fatal hæmorrhage occur comparatively seldom in cases of clinically definite chronic ulcers. "This risk in the individual case is quite eclipsed by a risk which can be fairly well estimated, namely, the chance of becoming an invalid."

With's method of treatment was used in these cases. Briefly, this is as follows:

1. Food is withheld for from two to four days, but one or two nutrient enemas are given after hæmorrhage or severe symptoms.

2. During the first week thereafter, $\frac{1}{2}$ liter of milk and two eggs beaten together are given the first day, and the quantities of these foods are then increased until 2 liters of milk and six eggs are taken.

3. In the second week of treatment rice pudding and 50 gm. of roasted scraped meat are given in addition.

4. In the third week the diet of the second week is increased by the addition of sago pudding, oatmeal, fruit juice, sugar, flour, and tea.

5. In the fourth week boiled fish, white bread and butter and, with general improvement, light meals are given.

6. In the fifth week the milk and eggs are gradually decreased.

7. After the bland diet is attained, it is given for from one-half to one year.

8. The patient is kept in bed until a light diet and boiled meats are tolerated.

ROBERT M. GRIER, M.D.

Alessandri, R.: Three Cases of Syphilis of the Stomach (Tre casi di sifilide della stomaco). *Ann. ital. di chir.*, 1923, ii, 1.

One of the cases reported was that of a man 45 years old and two were those of women 29 and 47 years old. In the first case the author performed a simple exploratory laparotomy for the removal of tissue for histologic examination. The tissue was taken from a neoplastic mass on the lesser curvature of the stomach. Examination disclosed no neoplastic elements. The patient had a strongly

positive Wassermann reaction and improved rapidly under anti-syphilis treatment.

In the second case a gastro-enterostomy was done for pyloric stenosis and a piece of tissue was removed from a tumefaction in the vicinity of the pylorus. The histologic examination of the specimen suggested syphilis. On being questioned, the patient then admitted having had an ulcer of the labium minus. The Wassermann reaction was found strongly positive. Salvarsan treatment resulted in marked and rapid improvement of the gastric condition.

In the third case an exploratory laparotomy with excision of tissue from a juxta-pyloric tumefaction on the greater curvature of the stomach was done. Histologic examination showed but slightly compact connective tissue with accumulations of lymphoid cells and the absence of neoplastic elements. The Wassermann reaction was positive. Under treatment with salvarsan the patient improved temporarily but later was obliged to return to the hospital because of evidence of pyloric stenosis. A pylorogastric resection, which was then done, afforded the opportunity for a careful anatomopathologic examination. There was complete absence of epithelial infiltrative elements; the mucosa and muscularis mucosae were almost normal, but the submucosa was greatly thickened and showed lymphocytic invasion especially around the blood channels.

W. A. BRENNAN.

Pistocchi, G.: Primary Sarcoma of the Stomach and Trauma; The Traumatic Genesis of Tumors (Sarcoma primitivo dello stomaco e trauma; genesi traumatica di tumori). *Policlín.*, Rome, 1923, xxx, sez. chir., 83.

Pistocchi gives the clinical history of a case of primary sarcoma of the stomach in a man 50 years of age. About six months before he was examined, the patient had suffered a severe contusion of the lower ribs, but there had been no vomiting or spitting of blood. The pain was localized chiefly in the epigastric region. Since the accident the patient had lost his appetite; had become emaciated, and had complained of nausea.

An X-ray examination showed only a slight dilatation of the stomach without any filling defect or variation in form except that the pylorus appeared somewhat displaced to the right. Death occurred two months later.

At autopsy the entire lesser curvature and the neighboring part of the anterior gastric wall was found occupied by an ulcerous mass. The neoplasm reached its maximum development (about 3 cm. in thickness) over the lesser curvature. No noteworthy changes were found in the intestine. The anatomical diagnosis was primary tumor of the stomach with secondary tumors in the liver, perigastric glands, and diaphragm. Death was due to gastric hæmorrhage. The microscopic diagnosis of the tumor was lymphosarcoma.

W. A. BRENNAN.

Cerf, L., and Pauly, N.: Deflection of the Biliary and Pancreatic Secretions by Jejunojejunostomy as a Complement of Gastro-Enterostomy or Gastrectomy (*La dérivation des sécrétions biliaires et pancréatiques par jéjunojéjunostomie comme complément de la gastro-entérostomie ou de la gastrectomie*). *Bruxelles-méd.*, 1923, iii, 257.

When the gastric tube brings up from the fasting stomach a large amount of alkaline fluid with a bile reaction, a pathologic condition may be inferred. When function is normal, the presence of bile and pancreatic secretion in the stomach is exceptional. That it is not badly tolerated, however, is demonstrated by the cases in which a gastro-enterostomy gives a perfect functional result and by the fact that in certain cases of icterus due to obstruction the gall-bladder may be anastomosed to the stomach.

In the cases of nervous patients whose gastric mucosa, being hypersensitive, does not tolerate the unaccustomed contact of bile, a series of morbid manifestations are noted which end in biliary vomiting, and the catheter withdraws a quantity of alkaline fluid of biliary character.

Medical treatment in such cases is difficult and a definite cure is obtained only by operation. The operation described by the authors and recommended by them for these cases may be performed as a supplement to gastro-enterostomy, but on account of its simplicity and beneficial effect they believe it should be done as a prophylactic measure at the time of the primary operation. The technique consists in closing the afferent loop (when the gastro-

enterostomy is made near its outlet) with heavy silk sutures and then uniting it above to the efferent loop by entero-anastomosis.

Vicious circle is impossible; the gastric contents cannot reflow toward the duodenum, and the bile and pancreatic secretion cannot reach the stomach, being turned into the efferent jejunal loop. The normal physiological conditions are thus approximated as much as possible.

The method somewhat resembles the Roux gastro-enterostomy in Y, but has two important differences: (1) it is easier and less dangerous, and (2) it allows a large orifice to be made, while with the Roux method the gastro-enterostomy opening corresponds to the diameter of the afferent loop which is greatly restricted and becomes smaller as the result of cicatrization.

W. A. BRENNAN.

Lockwood, A. L.: Surgical Possibilities in Traumatic Rupture of the Intestine. *Canadian M. Ass. J.*, 1923, xiii, 311.

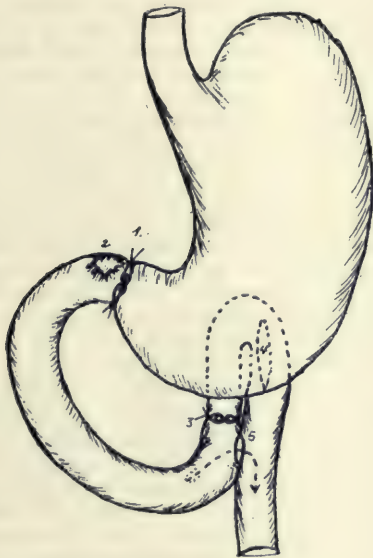
Rupture of the intestine may be caused by sharp blows on the abdomen, compression or crushing, indirect force, or a sudden increase in the air pressure within the lumen of the bowel. The most common cause is direct compression of the intestine against the vertebral column, the promontory of the sacrum, or the pelvic crest. The rupture, may be complete or incomplete. As a rule the small bowel is completely severed while the large bowel is only partially ruptured. Lacerations of the small intestine tend to be localized to the fixed portions. Lesions of the duodenum and colon are frequently retroperitoneal.

The author has collected the reports of 652 cases of traumatic rupture, of the intestine occurring in civil life. The small bowel was the site of the rupture in 90 per cent. In the 10 per cent in which the large intestine was ruptured, the cæcum, transverse colon, and pelvic colon were involved in the order named.

The symptoms of intestinal rupture depend on a great variety of conditions such as the nature and site of the lesion, the presence of lesions in other viscera, the patient's resistance, the fullness of the bowel, the treatment, the time since the injury, the ingestion of fluids, and the administration of morphine. They may appear immediately or late. They may be greatly delayed even when there is complete rupture of the intestine.

Primary shock appears almost immediately after the rupture. Apart from hæmorrhage, the onset of shock and its severity do not constitute an indication of the extent of the rupture. Primary shock occurred in 80 per cent of a large series of cases.

The temperature is usually subnormal, the pulse weak and rapid, and the respiration of the thoracic type. With the reaction from the shock the temperature rises. If it falls again and there is increasing rapidity of the pulse rate, the condition is serious. A high temperature usually occurs in late cases and indicates grave peritonitis.



1. Closure of the pylorus.
2. Duodenal ulcer.
3. Closure of the afferent loop (silk suture).
4. Posterior gastro-enterostomy.
5. Entero-anastomosis of the afferent and efferent loops.

Vomiting is a very important symptom and invariably present. It occurs early if the lesion is located high up in the small bowel.

Pain and tenderness aside from the superficial bruising is a well-localized deep pain often radiating to the loins or deep pelvis.

Abdominal rigidity, either general or localized over the area of injury, is typical and present in practically all cases. Progressive board-like rigidity indicates serious trouble, frequently a spreading peritonitis.

Abdominal distention with tympany may be of the paralytic type. Increasing distention eight to ten hours after the injury is a grave sign.

The absence of liver dullness is evidence of serious trouble and worthless for early diagnosis as it occurs only in late cases after the time for surgical operation has passed.

Surgical emphysema occurs in associated retroperitoneal rupture of the duodenum and colon.

The extreme importance of the early diagnosis of rupture of the bowel cannot be exaggerated. A delay of one hour at the critical time will destroy any chance of surgical aid. It is important to exclude thoracic, renal, and spinal injuries. The author operates on all persons who, following a blow on the abdomen, a crushing injury, or a fall, complain of severe abdominal pain which lasts for more than four to six hours and is associated with tenderness, vomiting, rigidity, and an increasing pulse rate.

Practically all cases of rupture of the bowel are fatal unless they are operated upon. Lesions of the large bowel are obviously more dangerous because of the greater danger of peritonitis. Just as in cases of perforated gastric ulcers, the most important element in the prognosis is the time elapsing between the injury and the operation. The prognosis is best when the operation is performed within six hours of the injury. In cases operated upon after twenty hours the chance for recovery is slight.

Of twenty-seven cases of intestinal rupture seen by the author in the period from 1914 to 1918, fourteen came too late for surgery and were fatal. In thirteen operated upon there were five recoveries. Rupture of the bladder and retroperitoneal injuries with kidney lesions complicated two fatal cases each.

Operation should be performed at the earliest possible moment after the subsidence of shock. The shock should be combated by blood transfusion, heat, morphine, and saline solution. At operation in the author's cases anæsthesia is induced with nitrous oxide and infiltration of the abdominal wall with novocaine. A wide incision is made over the site of injury. First, the site of rupture is explored and all perforations found are closed. The small bowel is then examined from the ileocaecal valve to the stomach and the large bowel from the cæcum to the rectum. The spleen, kidneys, stomach, pancreas, liver, bladder, and rectum are palpated. Multiple ruptures occur in 20 per cent of cases.

Resection of the bowel should be avoided and is rarely necessary.

Catgut No. 0 for the first layer followed by Lembert sutures will suffice for the small bowel. In the large bowel two layers of catgut sutures are reinforced with linen or silk. Omental tags should be tacked over the site of repair. If resection is necessary, an end-to-end anastomosis is preferable in both the large and the small intestine. The author completes the toilet of the peritoneum by mopping out the abdomen with gauze wet with saline solution. Irrigation and lavage of the peritoneum are dangerous. In the author's cases a hypodermoclysis of saline solution is given and a solution of sodium bicarbonate and glucose is administered by rectum every four to eight hours for forty-eight hours. Morphine is prescribed to slow the respiration and inhibit peristalsis.

In the late cases the only treatment possible is suprapubic drainage, the administration of morphine, and hot applications to the abdomen. These cases are usually fatal. JOHN W. NUZUM, M.D.

Schlaepfer, K.: Combination Ileus. *Ann. Surg.*, 1923, lxxvii, 594.

Combination ileus has been defined by Hochenegg as the coincidence of two acute occlusions of the intestinal tract, the primary occlusion becoming evident clinically only on the development of the secondary occlusion.

The author believes that combination ileus should be suspected in any case of incarcerated hernia (pseudo-incarceration) in which the history and the findings on examination are not typical of a complete acute intestinal occlusion, and if at operation the size and vascular condition of the afferent and efferent loops of intestine and adjacent mesentery are unusual.

A laparotomy with thorough examination of the gut will expose the primary factor in the occlusion. This is generally a mechanical occlusion, either an obturation (gall-stone, coprolith, new growth) or strangulation (hernia, band, volvulus, diverticulum). In cases of peritonitis with paralysis of the intestines a dynamic ileus may be a factor. In a second group of cases both causes are within the abdomen. A presumptive diagnosis of acute intestinal obstruction is an indication for laparotomy.

When one cause of obstruction has been removed a thorough examination and palpation should be made to exclude the presence of a second hidden primary cause or a second superimposed cause of the acute occlusion. In every case of combination ileus prompt surgical interference is indicated. The earlier the operation is performed, the better the prognosis. The high mortality in these cases is due to the fact that at the time of the first operation only one factor in the obstruction was removed and a second operation was necessitated by the persistence of the symptoms of acute intestinal obstruction when the patient was in a much weaker condition.

EMIL C. ROBITSNEK, M.D.

Williamson, C. S., and Brown, R. O.: The Permeability of the Intestinal Mucosa to Certain Types of Bacteria Determined by Cultures from the Thoracic Duct. *Am. J. M. Sc.*, 1923, clxv, 480.

The purpose of this investigation was to learn whether bacteria introduced into the intestinal canal under normal conditions and under conditions comparable to those of operative procedures could be recovered from cultures of lymph taken from the thoracic duct.

Observations were made on dogs with thoracic duct fistulae. The technique for making the thoracic duct fistula was a modification of that employed by Biedl. After the fistula was established, bacillus prodigiosus was chosen as the most satisfactory organism for the purpose of the study. The bacteria were grown either on dextrose agar or in bouillon cultures. As a rule, forty-eight-hour cultures were used for injection. The agar cultures were washed off with salt solution and fed or injected as a salt-solution suspension. Bouillon cultures were used infrequently, but when employed were either fed or injected. Control cultures of the suspensions were made before injection to determine whether the organism was viable. The amount of the suspension given varied from 20 to 30 c.cm. for each dose.

Group 1. This group of experiments consisted of the administration of the organism to fasted animals and the culturing of the thoracic duct lymph to determine whether the ingested bacteria could be recovered.

Group 2. The animals in this group of experiments, in addition to being fasted, were given a purge of castor oil or magnesium sulphate to determine the effect of irritation on the passage of bacteria from the intestinal canal to the lymph stream.

Group 3. This group of experiments was made to determine whether diet might be a factor in the passage of bacteria from the intestinal canal to the lymph stream. The diets given were rich in fats, proteins, or carbohydrates.

Group 4. From the results of the previous groups of experiments it seemed that the bacteria might be destroyed by the acid gastric juice. To obviate this possibility, a loop of jejunum 15 to 30 cm. below the ligament of Treitz was brought up and sutured beneath the skin ten to twelve days before the experiment was performed. The wound healed in a few days. Then, after the thoracic duct fistula was established, it was easy to inject the bacterial suspension directly through the skin into the jejunum by means of a hypodermic syringe.

Group 5. In this group of experiments an attempt was made to determine the effect of drying and trauma on the passage of bacteria from the lumen of the intestine into the lymph stream.

Group 6. The experiments in the preceding group, while similar, were not comparable to operative procedures on the intestinal canal. Therefore, in the sixth group of experiments intestinal operations were done, and the bacterial suspension was

injected at the completion of the operation. Cultures were then made as in the preceding experiments.

Group 7. In this group of experiments cultures were made from the thoracic duct lymph after the injection of the bacterial suspension into the colon following a cleansing enema.

Group 8. In this group of experiments cultures were made from the thoracic duct lymph after the injection of the bacteria into the peritoneal cavity. There were eight experiments. Positive cultures were obtained in four in from two to four hours after the injection. This group of experiments was made as a control for the other groups.

The conclusions derived from the study are as follows:

1. It is not possible to recover bacillus prodigiosus from a fistula of the thoracic duct by culture of the lymph after the ingestion of the organisms.
2. The negative results were not influenced by diet or by trauma due to exposure of the viscera or to standard operative procedures.
3. Cultures of the faeces for the ingested organisms were negative.
4. Cultures obtained from the thoracic duct following the injection of the bacteria into the peritoneal cavity were positive in 50 per cent of the experiments of Group 8.

Lemon, W. S.: The Status of Present-Day Methods of Examination in the Diagnosis of Intestinal Tuberculosis. *Minnesota Med.*, 1923, vi, 300.

It is a well-known fact that tuberculosis of the intestine may result from the ingestion of food containing tubercle bacilli. Such an infection is classified as primary, and is much more common in children than in adults. Secondary tuberculosis of the intestine is almost always associated with disease of the lungs, although rarely it may appear as a result of peritoneal tuberculosis or tuberculosis elsewhere in the body. It has been estimated by various authors that secondary intestinal involvement occurs in more than 50 per cent of all cases of pulmonary tuberculosis.

Stengel divides tuberculosis of the intestine into three types: ulcerative, stenotic, and chronic hyperplastic. Of these, the ulcerative is by far the most common, and the stenotic and hyperplastic are relatively rare.

While all clinicians agree that the incidence of intestinal involvement among tuberculous patients is high, two facts make an early positive diagnosis difficult: (1) There may be no symptoms referable to the intestine, and (2) such symptoms as appear may occur only late in the progress of the disease. Lemon feels that the onset of the recognizable intestinal disease gives almost as unfavorable an outlook as laryngeal involvement.

The late symptoms of tuberculous enteritis are merely those common to enteritis or ulceration from non-tuberculous disease. However, if the background of the tuberculous patient is kept in mind, these symptoms become of significance and even

earlier signs may be noted. It is recognized in an indefinite way that the patient who should be doing well is doing poorly. Constipation or diarrhoea may set in, or these conditions may alternate. In general it may be inferred that diarrhoea is proportionate to the extent of involvement of the large bowel, while constipation characterizes those cases in which the small bowel is most involved. Osler and Starr mention hæmorrhage as an important sign, but this was absent in Lemon's series.

Among the signs found on physical examination the most important are the sense of mass formation, an indefinite induration in the cæcocolonic area, and a feeling of general resistance and pain on deep pressure causing recognizable rigidity in the muscles of the abdominal wall. Distention has been less commonly noted, and active peristalsis was observed only with symptoms of obstruction. The presence of a draining sinus or fæcal fistula following an appendectomy is an important finding, but in such cases a search should always be made for the ray fungus before a diagnosis of cæcocolonic tuberculosis is made. A proctoscopic examination in these conditions is often of the greatest value.

That examination of the stool for tubercle bacilli does not materially aid in the diagnosis of tuberculous enteritis is seen from the fact that 75 to 95 per cent of all cases of active pulmonary tuberculosis with bacilli in the sputum likewise show bacilli in the stools.

While roentgenological examination is undoubtedly the most precise method at our disposal, Carman finds that interpretation is not without difficulty because there are no pathognomonic roentgenological signs. The filling defect and the absence of the normal barium shadow in the cæcocolon are signs of every ulcerative process. If, however, the examiner bears the patient's tuberculosis in mind, such findings take on the certainty of diagnosis. In fully 85 per cent of all cases of intestinal tuberculosis the lesions are found in the ileocæcal area.

The author's conclusions are summarized as follows:

The diagnosis of intestinal tuberculosis is made on circumstantial evidence collected from the history of the ailment, the examination of the patient, and the laboratory findings. The examinations include a proctoscopic examination, a study of material obtained through the proctoscope, a stool examination, and roentgenological observations.

Downes, W. A.: Perforated Duodenal Ulcer in a Child. *Ann. Surg.*, 1923, lxxvii, 756.

In the case reported the condition began with vomiting, but without pain or fever. All food by mouth was stopped and nothing was given but water. The vomiting ceased and there was slight improvement. On the morning of the sixth day sudden severe pain occurred in the upper abdomen and a large amount of brown fluid was vomited. The pain and vomiting continued and the temperature rose to 102 degrees F. The blood count

revealed 20,000 leucocytes and 92 per cent polymorphonuclears. An indefinite mass was palpated in the upper right quadrant.

Exploratory laparotomy revealed a large quantity of bile-stained fluid in the peritoneal cavity and a perforation $\frac{3}{8}$ in. in diameter on the anterior surface of the duodenum just distal to the pylorus. The perforation was closed with a pursestring suture of chromic gut reinforced by interrupted sutures. All fluid was aspirated and the wound closed without drainage.

Convalescence was uninterrupted. On the seventeenth day after operation the X-ray revealed normal stomach function.

CARL D. NEIDHOLD, M.D.

Brendolan, G.: A Leiomyoma of the First Portion of the Jejunum (Leiomioma della prima porzione del digiuno). *Polichin.*, Rome, 1923, xxx, sez. chir., 113.

Tumors arising from the connective tissue of the intestine are rarely reported in the literature. This may be due to the fact that, apart from their lesser frequency, the symptoms they produce are much less severe than those of epithelial tumors.

The case reported by Brendolan was that of a man aged 34 years who, four months previously, had an attack of intense pain in the left hypochondrium. Later, a swelling developed in the same area, the abdomen became tense, and defæcation was painful, but the fæces showed neither blood nor mucus. This abdominal condition continued for twenty days, after which the pain accompanying defæcation became localized in a part of the intestine and then diminished.

On examination, a smooth, mobile tumefaction, the size of a fist, was found under the left costal margin and extending almost to the umbilicus.

After the usual organic and other clinical tests the site of the tumor was believed to be the posterior portion of the omentum. It is usually considered pathognomonic of such omental tumors that when the stomach and transverse colon are filled, they disappear or decrease in size. This sign was observed. The pre-operative diagnosis was benign tumor, probably cystic and pedunculated, of the posterior portion of the omentum.

At operation, a round tumor the size of the head of a fetus and full of blood was found implanted upon the upper wall of the first portion of the jejunum about four fingerbreadths from the ligament of Treitz. This growth was removed with the portion of the intestinal wall on which it was implanted. The patient made an excellent recovery.

Histologic examination of the tumor showed that it was a leiomyoma arising from the intestinal musculature. The overlying mucosa was undergoing degeneration.

The author reviews the literature referring to leiomyomata of the gastro-intestinal tract. Steiner collected fifty-six such cases in 1899 but many of them were not proved cases. In 1917, King, in an

article on benign tumors of the intestinal tract, mentioned only thirteen cases of myoma proved by histologic examination. Brendolan believes that while such tumors may have a vascular origin, the majority arise from the muscular part of the organ on which they are implanted and, in the case of the intestine, from the muscularis mucosæ. The chief conditions with which such a tumor may be confused are cancer and simple and tuberculous inflammatory tumors. The chief danger arising from such growths is their tendency to sarcomatous degeneration. The only treatment is operative removal.

W. A. BRENNAN.

David, V. C.: Sliding Herniæ of the Cæcum and Appendix in Children. *Ann. Surg.*, 1923, lxxvii, 438.

A review of the literature shows that sliding hernia in children is not a common condition and that it is generally thought to be associated with rotation of the cæcum and the descent of the testicle during intra-uterine life.

The cæcum develops from the large bowel and lies up beneath the liver. As fetal life progresses, axial rotation takes place and the colon descends into the lower abdomen. Fusion occurs between the peritoneum of the ascending colon and the posterior parietal peritoneum, fixing the large gut in place. As pointed out by McMurrick, fusion of these two structures is sometimes incomplete, allowing a certain mobility of the ascending colon and the cæcum.

The testicle descends to the inguinal canal about the fifth month of fetal life. It is preceded into the scrotum by the tunica vaginalis. If the descent of the testicle were the cause of the hernia of the cæcum into the sac, the testicle would have to draw the cæcum and part of the parietal peritoneum down into the sac. The author believes that if such adhesions were the only cause an undescended testicle would be the result.

The fusion of the cæcum to the hernial sac should not be considered the result of a fetal peritonitis as this would cause evidence of inflammation in the surrounding structures. The author offers the suggestion that fusion of the wall of the cæcum to the peritoneal surface of the vaginal process takes place in the same fashion as fusion of the lateral wall of the ascending colon to the posterior parietal peritoneum.

David describes three cases in which the cæcum was found to be part of the posterior wall of the hernial sac. The treatment consisted in dividing the sac longitudinally and freeing the cord. The anterior half of the sac was trimmed away, the posterior cæcum was returned to the abdomen through the internal abdominal ring, and the opening was closed with a pursestring suture.

In none of the cases was there any adhesion between the testicle and the bowel nor any vascular connection which might be considered a plica vascularis.

WILLIAM J. PICKETT, M.D.

Szersynski, B.: Nerve Disturbances in the Abdominal Wall in Appendicitis (*Nervöse Störungen der Bauchwand bei Appendicitis*). *Polska gaz. lek.*, 1922, i, 816.

The different evaluations of Head's zones with regard to abdominal diseases caused the author to draw his own conclusions on the basis of a careful study of acute, subacute, and chronic appendicitis. Sensory perception was tested by means of touch, pricking with a needle, pinching with the fingers, and the application of cold and hot test-tubes, affected parts of the body being compared with parts free from the disease, the hypogastric region with the epigastric, the abdomen with the thorax, and the extremities. This examination was not made on very nervous persons.

Of eighty patients with appendicitis, sixty (75 per cent) showed variations in the sensibility of the skin within a region bounded above by the umbilical line; laterally, by the anterior axillary line, the spine, and the beginning of Poupart's ligament; below, by a line three to six fingerbreadths below the umbilicus; and medially, by the margin of the rectus. There were, however, occasional variations from this rule, particularly in an upward direction. Of the various sensations, pain caused by pinching showed the greatest variation.

The author comes to the conclusion that hyperæsthesia is most common in acute and subacute cases, and hypæsthesia in chronic cases.

With regard to reflex muscle tension he concludes that the disturbance lies in the motor section of the reflex arch rather than the sensory section. He therefore believes that Head's zones are not entirely dependable in diagnosis although they may be of some significance.

JURASZ (Z).

White, F. W.: The Clinical Importance of the Chronic Changes in the Appendix Which Are Discovered by the Roentgen Ray. *Boston M. & S. J.*, 1923, clxxxviii, 587.

As a preliminary to the determination of their clinical importance, the author discusses briefly the various roentgen signs of "chronic appendicitis." This term he believes is more or less a misnomer as it refers not so much to a chronic inflammation of the appendix as to the result of recurrent previous inflammation which caused chronic functional disturbance. The direct roentgen signs in the appendix are tenderness, fixation, kinking, a change in shape, abnormal position, lack of filling, slow emptying; beading, and adhesions in the ileocæcal region. The indirect signs are pyloric spasm, gastric residues, and ileal stasis. Most of the signs are suggestive rather than definite, and several, the more the better, are needed for a diagnosis (taken, of course, with the clinical evidence). If there is no tenderness and no fixation, the other signs count for little.

While tenderness is not strictly a roentgen sign, the roentgen examination permits of exact localization of such tenderness and if this coincides strictly with the visualized appendix it constitutes

the best single sign of pathology. As regards filling, there is wide variation of opinion. The author believes that when the appendix is not seen, little can be said about it and that this fact justifies the conclusion that its lumen is obliterated or it is retro-cæcal. The nature of the filling, whether it is irregular, interrupted, beaded, or segmental, is not a definite criterion of pathology as it may be of purely physiological origin. Delayed emptying, i.e., much over thirty-six hours or after the cæcum has emptied, suggests poor drainage and hence is potentially a source of danger.

Fixation is important, especially if it involves one part of the appendix, the tip or median part, and causes kinking and deformity; this indicates adhesions from previous inflammation. Fixation or kinking must be permanent, and not merely apparent or accidental, to have any value in diagnosis. Kinking and angulation are usually due to adhesions, narrowing, scar tissue, and obliterative changes; irregular dilatation may be due to obstruction with delay in emptying and fermentation of contents. Size is of no diagnostic importance and variations of shape are important only if constant. Likewise, anomalous position is significant only if it is fixed.

Of indirect signs, slow emptying of the ileum with residues of the barium meal for twelve to twenty-four hours or more is frequently the result of obstructive delay from adhesions, but there are also other causes. The gastric signs, such as spasm of the pylorus and duodenum and stasis, are very inconstant and unreliable. Incompetency of the ileo-cæcal sphincter has little relation to the appendix and is too common in the absence of chronic appendicitis to have any diagnostic value. Adhesions involving the ileum, colon, and pelvic organs indicate congenital veils or local inflammation; previous appendicitis is a common cause.

In interpreting the various roentgen signs in individual cases as indications for operative interference the greatest caution is essential. In an operative group, a different group of signs were always found, namely, constant tenderness of the appendix itself, sharp kinks with fixation, marked delay in emptying associated with tenderness, and a history of local pain or tenderness. The diagnosis has been made chiefly on the basis of direct signs in the appendix itself or adhesions. The most important direct signs have been tenderness of the appendix, constant changes in shape, fixation, and abnormal position. The less important were the filling and emptying of the appendix and signs of fæcal residue.

ADOLPH HARTUNG, M.D.

Jackson, J. N.: Acute Gangrenous or Perforative and Suppurative Retrocæcal Appendicitis.
South. M. J., 1923, xvi, 282.

The appendix is found to be retrocæcal in about 20 per cent of cases. The sequelæ of inflammation in an appendix so situated are quite different from those of the peritoneally placed appendix and there-

fore the symptoms and the surgical measures required differ greatly.

The simplest form of retrocæcal appendix has the usual mesentery. The second variety passes upward outside the colon, beneath the peritoneum of the lateral iliac or lumbar fossa. It is without a mesentery and is retroperitoneal except anteriorly and at its tip. The third type passes upward along the cæcum and colon and its peritoneal covering is that of the colon wall. The side next the gut has no peritoneum. The fourth type, which is rare, passes up beneath the cæcum and ascending colon between the layers of the mesocolon; and is a true retroperitoneal appendix.

Two stages of appendicitis are recognized: (1) that in which the infection is confined to the appendix, and (2) that in which the infection has broken through the gut wall and extends either to the peritoneum, the cellular tissues, or the blood stream.

In the retrocæcal appendix the peritonitis extends primarily to the lateral or lumbar peritoneal fossa and is usually confined to this space outside the colon, but may extend up toward the kidney or liver and gall-bladder or even into the lung. The author had two cases in which the pus ruptured into a bronchus.

The cases with direct extension may have an abscess pointing over the iliac crest, the lumbar region, or extending through the cellular tissue down over the buttocks to the knee.

In the fourth type the extension is closely associated with the origin of the mesocolonic veins, and a septic thrombo-phlebitis occurs which may reach the liver where it may cause single or multiple abscesses.

These severe complications were seen during the author's earlier practice and represent failure of early diagnosis and inadequate treatment. During the last ten years Jackson has had no such serious complications.

In the first stage the symptoms are the same, whatever the location of the appendix. In the second they vary with the location. They may be divided into: (1) constitutional, such as fever, rapid pulse, general depression, and blood changes, and (2) local, which should be more closely observed in order to locate the appendix. In the early stage the local symptoms do not vary with the site of the appendix and are sudden in onset. Severe pain is usually referred to the epigastrium and there is more or less vomiting. As the condition spreads to the peritoneum, the symptoms of peritonitis supervene, and later become localized over the region.

In cases of retrocæcal appendix the peritonitis is more localized and may quickly disappear, but if deep pressure is made over the iliac crest or in the lumbar fossa a very distinct tenderness, previously unsuspected by the patient, is discovered. This is a valuable sign. Proper diagnosis requires: (1) an accurate detailed account of the symptoms of the first twenty-four to forty-eight hours, (2) recognition of the fact that the later signs are chiefly those of

peritonitis, which in cases of retrocæcal appendix, is limited largely to the outer side and the back of the cæcum, (3) the evidence of continued infection, (4) slight stiffness and distinct tenderness on pressure above the crest of the ilium in the lumbar region.

The treatment of retrocæcal appendicitis is the same as that of any other type. Early diagnosis and early operation are important. In cases of gangrene or perforation, operation is usually done as soon as possible, but as there is not the same acute danger as when general peritonitis threatens, the patient's general resistance and condition are sometimes improved before operation by the administration of glucose and soda, proctoclysis, hypodermoclysis, gastric lavage, and enemata for twenty-four hours.

The McBurney incision is used as it can be extended toward the kidney or liver. The general peritoneal cavity is walled off with hot packs, adhesions are broken up with the index finger close to the lateral wall and the appendicular structure is removed. When the appendix extends along the colon, great care is necessary to avoid injuring the latter. After removal of the appendix its stump is buried. The colon can be considerably infolded. Proper drainage is often the key to success. A counter-drain through a stab incision in the lumbar region will often be indicated. A large tube is used, and the patient placed in the Fowler position. A cigarette drain is placed in the abdominal incision and, if indicated, into the pelvis, and the wound is closed in layers. Hot fomentations are immediately applied to the wound to help control infection in the superficial layers, thus shortening the convalescence and lessening the liability to weakness of the walls with herniation.

MARCUS H. HOBART, M.D.

Rouffart: Chronic Appendicitis and Appendectomy
(Appendicite chronique et appendicectomie). *Gynéc. et obst.*, 1923, vii, 115.

The literature indicates that many surgeons experience great difficulty in making a diagnosis of chronic appendicitis. Rouffart states that he cannot understand Gibson's failure in 40 per cent of his cases to relieve the symptoms attributed to chronic appendicitis by appendectomy. Neither can he understand why others claim great difficulty in differentiating chronic and subacute appendicitis from painful mechanical and inflammatory affections of the cæcum, ascending colon, or omentum. Typhilitis, ptosis, and chronic intestinal stasis are rarely encountered, easy to diagnose, and not comparable in gravity to appendicitis. In the main, their treatment is not surgical; anastomosis, bowel fixation, and resection are rarely indicated. Rouffart agrees with Walther that the principal offender in all these conditions is the appendix, and that therefore in chronic appendicitis with colitis, prolapse or dilatation of the cæcum, etc., the first step should be an appendectomy.

In the hundreds of cases of chronic appendicitis on which the author has operated in the last thirty years, he has had no failure; abdominal pain, in-

fection, outbreaks, and intoxication entirely disappeared after the appendectomy. Also after refusal of operation in this condition he has seen many poor results, even death. In three of his cases in which there was a return of symptoms necessitating a second operation he found new pathology such as retroversion of the uterus or adhesions in the pelvis, but nothing referable to the appendix. He therefore assumes that the therapeutic failures reported by others may be diagnostic failures. He believes it is easy to differentiate between appendiceal and colonic inflammation.

In conclusion the cases of two female patients with chronic appendicitis who were operated upon are reported. Rouffart makes a short incision $2\frac{1}{2}$ to 3 cm. running obliquely downward and inward from a point 2 or 3 cm. distant from the antero-superior iliac spine and at a level with the spines. This can be converted into the Pfannenstiel incision if an unforeseen condition is exposed when the peritoneum is opened.

KELLOGG SPEED, M.D.

D'Agata, G.: Amputation of the Rectum and Total Prostate-Vesiculectomy for Associated Neoplastic and Tuberculous Processes (Amputazione del retto e prostata-vesiculectomia per concomitante processo neoplastico e tubercolare). *Arch. ital. di chir.*, 1923, vi, 602.

D'Agata reports the history of a man aged 57 years, in whom the anatomical and histopathological findings revealed the presence of an adenocarcinoma of the rectum propagated to the prostate which was already chronically inflamed. Biological tests and the clinical manifestations of the inflammatory process left no doubt as to its tuberculous nature.

The coexistence of a tuberculous and neoplastic process in the same tissue as in this case is very rare. In the cases which have been reported in the literature previously the tuberculosis preceded the cancer or vice versa.

In the author's case the clinical diagnosis was confirmed at operation. On account of the extension of the neoplastic process, D'Agata did a classical Lisfranc total amputation of the rectum and a prostate-vesiculectomy. The segment of intestine amputated showed a large ulcerated neoplasm occupying the entire rectal ampulla, and a sagittal section of the prostate-rectal mass showed the prostate infiltrated with the same neoplastic tissue and tuberculous lesions. The neoplasm was proved to be an adenocarcinoma by microscopic examination.

The patient left the hospital four months after the operation in excellent condition. He was then able to retain even fluid feces, and there was no sign of recurrence.

W. A. BRENNAN.

Bowing, H. H., and Anderson, F. W.: The Treatment by Radiation of Cancer of the Rectum. *Am. J. Roentgenol.*, 1923, x, 230.

The authors give an account of the technique used and the experience gained in approximately 300 cases of cancer of the rectum treated at the

Mayo Clinic. The majority of these cases were inoperable, and only a reasonable amount of placebo treatment was given. Some of them were recurrences following radical surgical procedures. In about twenty cases a radical posterior resection was done after radiotherapy without any added surgical difficulties.

The authors give a classification of the types of rectal cancer and describe the various forms of applicators, with illustrations. They discuss the technique employed, the factors to be considered in the treatment of the different types, and the difficulties and reactions which are apt to be encountered.

They conclude that in the majority of rectal neoplasms, radium has a definite inhibitory and destructive effect and is a valuable aid to surgical measures.

For the best results, an abdominal exploration should be made except in grossly inoperable cases. It is not essential to perform a colostomy in order to give radium and roentgen-ray treatment. If the case is grossly inoperable, radium and the roentgen rays may be used, colostomy being done only if obstruction is impending.

When a colostomy has been made, the growth should be treated through the distal loop, and when the growth can be felt digitally through the vaginal walls, the vagina should be packed with radium.

Early diagnosis is of paramount importance. A rectal examination should be made more frequently by the general practitioner. Some neoplasms of the rectum respond readily to radium and roentgen-ray treatment while others are resistant. Long survival is possible even in untreated cancer of the rectum.

The best method of radiation therapy is a combination of radium and roentgen ray used as early as possible.

LIVER, GALL-BLADDER, PANCREAS, AND SPLEEN

Gundermann: The Pathology of Human Bile Secretion and a Report on Polycholia (Zur Pathologie der menschlichen Gallensekretion, zugleich ein Beitrag zur Polycholie). *Beitr. z. klin. Chir.*, 1923, cxxviii, 1.

The author mentions the fact that the quantity of bile obtained through a biliary fistula in the human being must be regarded as pathologic and does not permit any estimation of the physiological quantity. The quantity of bile, urinary output, and fluid intake were determined in a number of cases in which cholangiotomy had been performed. Only those cases were studied in which the stools were acholic, practically all of the bile being led off through a soft catheter.

The period of observation was the first eight days after the operation. Particular attention was paid to the influence of the intake of fluid upon the quantity of bile. Rest in bed, because of the lack of body movement, produced an effect upon the

blood pressure and circulation in the liver and further reduced the renal output of fluid to the minimum. Finally, in a series of cases the chloride content of the bile was estimated in terms of sodium chloride in order to determine the part played by the liver in sodium-chloride metabolism. Of thirty-one cases, thirteen were found suitable. Nine of the latter showed an average secretion of 250 c.cm. of bile in the first eight days. The quantity of urine varied from 500 to 550 c.cm. The total of both secretions fell noticeably below the fluid intake. In some cases the differences were so great that water must have been retained in the body. Two patients daily secreted 500 c.cm. of bile and between 750 and 1,000 c.cm. of urine, the fluid intake and total secretion counterbalancing each other. In one case the quantity of bile and urine was 500 c.cm., while the intake of fluid was usually somewhat less.

The investigation therefore demonstrated that the secretion of bile is independent of the fluid intake, but that the latter has an effect upon the urinary output. The loss through bile indicates an unbalanced state of the body, which must be corrected through the subcutaneous injection of fluid, preferably the infusion of glucose. During starvation, the quantity of bile obtained through the fistula averaged about 250 c.cm. in most cases, and generally did not reach the quantity of urine passed in the same period of time. The determination of the chlorides of the bile showed that bile from the gall-bladder has a higher content of sodium chloride than that from the liver, and further, that the sodium-chloride content of bile is very constant and independent of the amount of the salt taken in the food.

An anomalous case in these investigations produced more bile alone than the amount of fluid taken in. In this case 8,300 c.cm. of fluid were introduced into the body, and 10,000 c.cm. were lost through bile and urine. Of the fluid lost, 2,800 c.cm. were urine and 8,100 c.cm. were bile. Therefore the bile secreted was only 200 c.cm. less than the entire fluid intake. The loss of weight during this time was 2,600 c.cm. The bile was strikingly light in color and thin. As the secretion of bile was probably as great before the operation as after it and the quantity of urine excreted before the operation was large, it seems justifiable to assume that in some persons there is a double circulation of water, some of the water ingested reaching the intestine through the liver and bile before it is excreted by the kidneys.

In the author's opinion the water content of the food is not essential for a concentrated flow of bile. Numerous other factors, such as obstruction, are also of little importance. The effect of hormones as well as the causative relationship between cholangitis and increased bile secretion is questioned. In any event it is a fact that here we have a true polycholia produced by an unusually profuse excretion of water.

The author concludes that a distinction should be made between the terms "polycholia" and

"pleiochromia." The latter indicates a condition of the liver cells in which a highly-pigmented, thick, water-poor bile is excreted, whereas "polycholia" means the secretion of a thin watery bile.

HAUMANN (Z).

McMaster, P. D., Broun, G. O., and Rous, P.: Studies on the Total Bile: III. On the Bile Changes Caused by a Pressure Obstacle to Secretion and on Hydrohepatosis. *J. Exper. Med.*, 1923, xxxvii, 685.

By experiments on dogs the authors found that in bile which is secreted against an abnormally high pressure, as during partial obstruction, the pigment, cholate and cholesterol outputs are cut down so much more than the fluid bulk that the concentration of the substances per cubic centimeter of bile is notably lessened. The fluid obtained at the greatest pressure compatible with secretion contains only traces of the typical biliary constituents. The relationship of these alterations in the bile to the consequences of partial biliary obstruction is discussed.

An analysis of the liver changes following biliary obstruction brings out their essential likeness to the changes that occur under similar circumstances in glands in general and the kidney in particular. The major physiological factors concerned in the development of hydronephrosis and in the liver changes after biliary obstruction are identical. It is suggested that the term "hydrohepatosis" be used, not merely to designate the liver condition, but to indicate the principles underlying its development. In clinical cases of biliary obstruction the likeness to hydronephrosis is often hidden because of the activity of the gall-bladder which renders the stasis bile dark and thick. There is then a concealed hydrohepatosis differing merely in the character of the duct content from the manifest hydrohepatosis with white bile which is found when the gall-bladder fails to act.

GEORGE E. BEILBY, M.D.

Broun, G. O., McMaster, P. D., and Rous, P.: Studies on the Total Bile. IV. The Enterohepatic Circulation of Bile Pigment. *J. Exper. Med.*, 1923, xxxvii, 699.

The authors' experiments were carried out on dogs permanently intubated for the collection of the total bile. When the dogs were fed cooked liver of the sheep or ox, the bile for several days thereafter was green instead of the previous yellow brown.

The change in color of dog bile after the feeding of the green bile or the liver tissue of herbivora is no more than suggestive in this connection. The appearance in the bile of cholehæmatin after the administration of the pigment by mouth demonstrated conclusively that a substance nearly related to bilirubin is absorbed in the intestine and excreted by the liver.

The results of the feeding of dog bile leave no doubt that the bilirubin output was increased thereby in many instances. One reason why it was not always increased was that circumstances were fre-

quently unfavorable to absorption from the intestinal tract. The pigment increase is certainly not due to flushing out by the quickened bile stream. A relatively small liberation of hæmoglobin by blood destruction would account for it. It was in this way that one investigator explained an increase he observed after the feeding of large quantities of bile salts to fistula dogs.

In one of the authors' dogs an average of approximately 0.072 gm. of extra pigment appeared in the bile on each of eleven successive days. This might have been caused by an extra destruction daily of 16.3 c.cm. of blood with 80 per cent hæmoglobin. In twenty-four-hour specimens from dogs given large amounts of the cholate of dog bile, another investigator found no increase in pigment. It is possible that the pigment increases observed by the authors were not due to a greater total output of the substance but were the result of recurring temporary alterations in the rate of elimination such as follow the administration of carbohydrates.

The proportion of bilirubin presumably resorbed in their experiments was sometimes negligible and sometimes high. In one dog it amounted to 72 mgm. of the 172 mgm. administered daily (42 per cent). That bile feeding is of benefit to man and other animals losing the secretion by a fistula has long been acknowledged. Intensely jaundiced patients may live for years, but if, following an operation, all the bile escapes by the fistula, the loss of weight is very rapid and death may soon result if the patient is old.

The authors summarize their findings as follows:

In dogs fed the green bile or the liver tissue of herbivora, the bile secreted later frequently becomes green, changing from the previous yellow brown. When sheep bile containing cholehæmatin is fed, the bile comes to contain this pigment. When dog bile in quantity is given, a well-marked increase in the output of bilirubin by the liver frequently follows. Taken together, these facts indicate the presence of an enterohepatic circulation of bile pigment.

GEORGE E. BEILBY, M.D.

Michie, H. C.: Acute Catarrhal Jaundice. *Mil. Surgeon*, 1923, lii, 390.

The author classifies jaundice as: (1) congenital jaundice, i.e., hæmolytic, icterus neonatorum, and (2) acquired jaundice. The latter includes intoxications of known and unknown origin, obstructive and chemical jaundice. This report is based upon a study of 119 cases which were admitted to the hospital from the American troops on the Rhine during the period from August, 1921, to July, 1922. During this time all jaundice cases were sent to a special ward for intensive study.

The routine procedure consisted of a thorough physical examination and investigation as to syphilitic infection, the stage of this disease if it was present, and the treatment that had been received. Record was made as to the degree of staining of the conjunctiva, coating of the tongue, and amount of bile in the stool. The mental condition was noted, and

record was made as to subjective symptoms such as "heart burn," "a ball in the stomach," "distress after eating," etc. Further examination included gall-bladder drainage, a functional test of the liver (hæmoclastic crisis), and an X-ray examination of the gastro-intestinal tract whenever indicated.

The author describes in detail the technique of examination and the apparatus used. The cases studied included three of acute yellow atrophy of the liver. These resembled the cases of acute catarrhal jaundice clinically, the only difference being one of intensity. The number of cases of jaundice with syphilis was about half that of cases without syphilis. Patients with syphilis were more anæmic than those without, presented more symptoms referable to the liver, and were jaundiced longer.

The importance of alcoholism, especially the drinking of sour wines, in the etiology of these cases could not be definitely determined as the histories were unreliable in this respect, but food, especially the eating of a certain kind of sausage, played an unmistakable part as among the officers, who did not eat this kind of food, there were no cases of jaundice whereas every soldier with jaundice stated that he had eaten it regularly.

There was no seasonal variation in the number of admissions. Culture of the bile and all other bacteria examinations were negative. While pus was found in the upper respiratory tract in a certain percentage of the cases, all uncomplicated cases were afebrile.

Fractional examination of the contents of the duodenum gave evidence of the presence of gastric or duodenal ulcer or chronic gastritis. The most striking acid curve was that of cases of duodenal ulcer. This brought out the fact that when the total free acid was over 10 and the second or third duodenal specimen showed a total acidity exceeding 50 per cent of the total gastric acidity, a duodenal ulcer was present. This finding was made in 80 per cent of the cases of ulcer of the duodenum and was not made in any case without evidence of ulcer.

The treatment consisted of the usual calomel purge followed by the daily administration of $\frac{1}{2}$ oz. of sodium phosphate. In some cases a mixture of hydrochloric acid, pepsin, and strychnine was given. Others received quinine. Patients with ulcer or gastro-intestinal irritation were given a modified Sippy treatment.

In summarizing the author states that acute catarrhal jaundice is not a disease but a symptom and the only clinical difference between it and acute yellow atrophy of the liver is a difference of degree. There is no apparent obstruction of the common duct. Bacteriological examination of the bile is negative. Ninety per cent of cases exhibit duodenitis. It is evident that certain diets play an important rôle in the production of jaundice, and it is probable that the disease originates in the stomach and duodenum, affecting the liver secondarily. The toxin may then be secreted from the liver through the bile and become resorbed by the intestine, a vicious circle being thus established. WILLIAM J. PICKETT, M.D.

Ritter, A.: The Results of Ligating the Hepatic Artery: Observations on the Functional Examination of the Liver (Ueber die Folgen der Ligatur der Arteria hepatica. Beitrag zur Funktionsprüfung der Leber). *Mitt. u. d. Grenzgeb. d. Med. u. Chir.*, 1922, xxxv, 76.

Following a description of the anatomy of the blood supply of the liver and stomach, which is illustrated by sketches, the author mentions the clinical cases of ligation of the hepatic artery or its branches which have been reported in the literature (twenty-nine cases, three of them personally observed), and discusses the prognosis and clinical aspects following this procedure.

As regards the site of the ligation, the common hepatic artery is the least dangerous since the collateral circulation—the right gastric and gastro-epiploic and the superior pancreaticoduodenal arteries—insures a sufficient blood supply. Following ligation of the arteria hepatica propria or of the communis and its collaterals the prognosis is very unfavorable. In ten cases there were seven deaths. One of the author's patients survived only because an accessory vessel was present between the stump of the arteria hepatica communis and the arteria hepatica propria, distal to the ligation. In the two other cases, which were operated upon by the Kehr method, partial necrosis of the liver supervened.

The prognosis of ligation of the right branch of the hepatic artery is somewhat more favorable (mortality about 50 per cent). The mortality of ligation of the left branch is 70 per cent.

It is of interest that in the author's two cases in which the operation was well borne the function of the liver was impaired in spite of the fact that icterus was not observed. Even after the third week a distinct disturbance of carbohydrate and protein metabolism was noted, a finding supported by the galactose test of Bauer and by Abderhalden's method of amino-acid determination. This also explained certain disturbances in the postoperative period.

The author assumes that there is serious damage to the liver if, following ligation of a branch of the hepatic artery, the amino-acid excretion is four or five times the normal figure. He believes that when the patient's condition will permit it, a second laparotomy for the excision of the damaged lobe should be done several days after the functional tests of the liver.

VOLLHARDT (Z).

Mann, F. C., and Magath, T. B.: Studies on the Physiology of the Liver. IV. The Effect of Total Removal of the Liver After Pancreatectomy on the Blood-Sugar Level. *Arch. Int. Med.*, 1923, xxxi, 797.

Previously reported studies by the authors on the physiology of the liver demonstrated that:

1. A characteristic group of symptoms followed by death develops after total removal of the liver.
2. These symptoms are associated with decreasing blood sugar, and the various symptoms and death occur at definite blood-sugar levels.

3. The injection of glucose after the development of symptoms abolishes them and restores the animal to normal.

4. If glucose is administered after hepatectomy in amounts sufficient to maintain the blood-sugar level at or above normal, the characteristic symptoms do not develop and the animal lives for a variable period of time, which is always much longer than if glucose had not been administered, but dies following the development of a totally different group of symptoms.

These striking and very definite results proved that the maintenance of the normal level of blood sugar is dependent on the liver. They showed also that there is a certain critical level of blood sugar below which it is impossible for the organism to live. The liver thus assumes renewed importance and undoubtedly has a vital function as regards carbohydrate metabolism.

It has been known for a long time that pancreatectomy causes glycosuria and hyperglycemia. It is evident, therefore, that the two glands, liver and pancreas, have a reciprocal action on the concentration of sugar in the blood. When the liver is removed, the sugar disappears from the blood; when the pancreas is removed, the sugar increases in the blood. It was the purpose of the authors' research to determine whether or not the hyperglycemia following pancreatectomy is dependent upon the presence of the liver.

The study was made upon dogs in which the liver was removed by a technique described in a previous article. The pancreas was removed at various periods of time before removal of the liver. It was found that when the two glands were removed at the same time, the resulting condition was the same as that following removal of the liver alone. When the liver was removed from twenty-four to ninety-six hours after pancreatectomy, the blood sugar decreased quickly and the same characteristic symptoms developed as after hepatectomy, but at a higher blood-sugar level. The injection of glucose restored the animal to normal, but the effect was transitory. The total removal of the pancreas and partial removal of the liver in an animal in which an Eck fistula had been made was followed by only slight or no increase in the blood sugar.

These experiments prove that the presence of the liver is absolutely necessary for the hyperglycemia following pancreatectomy.

Piersol, G. M., and Bockus, H. L.: Observations on the Value of Phenoltetrachlorophthalein in Estimating Liver Function. *Arch. Int. Med.*, 1923, xxxi, 623.

The authors summarize the work which has been done up to the present time upon the value of phenoltetrachlorophthalein in estimating liver function and draw the following conclusions:

1. Phenoltetrachlorophthalein is an ideal substance for estimating liver function, as in health it is eliminated solely by the bile.

2. In health, the forty-eight-hour output of the dye in the feces is fairly constant.

3. The time of appearance of the dye in the bile is of decided importance, but it cannot be determined by the feces method.

4. The dye output decreases as the hepatic parenchymal damage becomes more extensive.

The recent work of McNeil, Aaron, and others with the duodenal tube opened up a new field for investigation. The authors were stimulated to go on with the work and to attempt the development of a technique which would make this test comparable to the phenolsulphonephthalein kidney test. Fifty cases were studied.

The duodenal tube was introduced into a fasting stomach and gavage performed, a small quantity of water being left in the stomach. The tube was then passed on into the duodenum and water was given by mouth to insure a steady drip of bile-stained fluid from the tube. The dye was then injected intravenously and the bile collected in a solution of sodium hydroxide. The time of appearance of the first faint color and of the maximum color was recorded. Each half-hour's output was collected for two hours and the amount of dye recovered was estimated by means of a colorimeter.

The conclusions drawn are as follows:

1. A delay in the appearance time of the dye was proportionate to a decrease in the output. The quantitative estimation of the dye output in two hours is of more importance than the recording of the first appearance time, but both should be considered.

2. When the liver was grossly pathologic the time of appearance of the maximum color was twice as long as in normal cases and the dye output averaged one-eighth of the output in normal cases.

3. The output of dye in normal cases varies with age. The younger the subject the greater the amount of dye recovered.

4. This test should be of distinct value in cases in which the functional capacity of the liver is only slightly disturbed and when it is clinically negative to other methods of examination.

5. The technique is extremely simple and can be performed with ease by the average clinician. Common-duct obstruction, of course, interferes with the test.

C. J. GLASPEL, M.D.

Kaiser, F. J.: The Movable Liver and Its Successful Treatment: A New Method of operation Based on the Principle of Supporting the Liver from Below and a Plastic Procedure on the Abdominal Wall with Doubling of the Aponeurosis (Die Wanderleber und ihre erfolgreiche Behandlung. Eine neuartige Operationsmethode mit dem Prinzip der Stuetzung der Leber von unten; verbunden mit Bauchwandplastik mittels Aponeurosendoppelung). *Deutsche Ztschr. f. Chir.*, 1922, clxxv, 411.

Hepatic ptosis is of the following two types:

1. The purely local condition due to lowered intra-abdominal pressure from enlargement of the lower abdominal cavity following pregnancy, the removal

of tumors, ascitic fluid, etc. These are the cases in which surgery is indicated.

2. The general splanchnoptosis associated with the congenitally asthenic habitus (persons with a flat thorax, light bone structure, heart leakage, a narrow aorta, and an unstable nervous system). These are the cases in which it is important to avoid operation. The treatment should be conservative.

After discussing the diagnosis and the conservative and operative methods of treatment hitherto in use, Kaiser describes a new surgical procedure which is based on the principle of supporting the liver from below. The technique is as follows:

An incision is made in the median line of the abdomen, the ligamentum teres is divided, and the liver is forcibly put back into position. The right side of the abdominal wall is then forcibly raised and a horizontal incision is made from within outward, beginning three or four fingerbreadths from the spinal column and continuing up to two fingerbreadths from the median line; this incision begins posteriorly at about the level of the tenth rib and extends anteriorly to the ninth rib. It is carried through the peritoneum and fascia transversalis as far as the musculature, and then far enough downward so that a peritoneal pocket may be formed by forcing aside the divided layers of the musculature of the diaphragm and abdominal wall with blunt instruments. Slight hæmorrhages are arrested by the subsequent plugging action of the liver and are favorable to a close adhesion. During the separation of the peritoneum, care must be exercised to prevent pneumothorax.

The lower segment of the right lobe of the liver is placed in the pocket formed in the peritoneum. As a rule it will remain in this pocket without further fixation, but if it is thought best, a few sutures may be used to fix the edge of the pocket to the often thickened capsule of the under-surface of the liver.

To prevent recurrence after the attachment of the liver a plastic operation on the abdominal wall is usually necessary. The author makes an incision from the ensiform process over the navel to the symphysis, dissects back the skin and subcutaneous fat for the width of the hand on both sides, and divides the layers of the abdominal wall in the median line. With strong interrupted silk sutures he then fastens the right layer of the abdominal wall to the inner surface of the peritoneum of the left side as far as possible, taking in the aponeurosis, and brings the left aponeurotic layer over as far as possible to the right and attaches it with interrupted sutures to the outer surface of the aponeurosis. Superfluous skin is then resected. HELLER (Z).

Manson-Bahr, P., Low, G. C., Pratt, J. J., and Gregg, A. L.: The Treatment of Liver Abscess by Aspiration. *Lancet*, 1923, cciv, 941.

The authors describe a simple procedure which they believe should replace the classical open op-

eration for liver abscess. Aside from its attending risks, the open operation is associated with risks of a secondary nature. Secondary infection of the sterile abscess cavity often follows with resulting sinus formation. The mortality of liver abscess remains high. Various factors influence the death rate. European patients have a better chance for recovery if they are operated upon in England than in the tropics. The mortality is lower in Europeans than in natives of the tropics because Europeans apply for treatment as soon as the disease is manifested.

Rogers in his "Bowel Diseases in the Tropics" (1922) states that the mortality of liver abscess, even with anti-amœba treatment, is still 50 per cent, while in the cases in which the closed method of treatment is used the mortality is only 14.4 per cent. Aspiration of liver abscess dates back to 1828, when Annesley advocated drainage through a trocar. In 1871 Maclean evacuated the pus through a Bowditch syringe and gave 20 to 25 gr. of ipecac daily. Jessett in 1885 reported one case which was aspirated sixteen times for the removal of 400 oz. of pus. Rogers advocated repeated aspiration and the introduction into the cavity of a quinine solution.

In this paper the authors outline a series of fifteen cases which have been under their care during the past three years. Aspiration was done in all, and in some of them anti-amœba treatment was given. All recovered. The technique was as follows:

1. A Potain aspirator was used, the needle being inserted not more than $3\frac{3}{4}$ in.

2. An extra supply of tubing was kept in reserve in case the tubing used became plugged during the drainage.

3. When pus was found at exploratory puncture, it was thoroughly and quickly drained.

4. When the pus was too thick for aspiration, a Manson trocar and cannula were used.

5. The site chosen for drainage was the point of greatest swelling and tenderness; if none was present, either the eighth anterior or mid-axillary interspace or the epigastric route was chosen.

6. Not more than three punctures were made at a time without anæsthesia; if an anæsthetic was used, six punctures were made.

7. As much pus as possible was evacuated at one time.

Repeated punctures cause little hæmorrhage. In most cases general anæsthesia is preferable to local anæsthesia. For the induction of local anæsthesia, 2 per cent novocaine with adrenalin is best.

Of the series of cases reported only one had a recurrence of the abscess; this developed nineteen months after drainage of the primary abscess.

One case in this series, although treated in the same way as the others, showed a marked variation from the usual course after the aspiration. The patient was subjected to three operations and was obliged to remain in the hospital for six months. In this case a secondary infection was probable.

The average length of time in the hospital was 29.8 days. Anti-amœba treatment was employed with the aspiration. Its value is unquestioned, although the use of any substance locally in the abscess cavity was proved unnecessary.

In their conclusions the authors make the following statements with regard to the diagnosis:

1. Liver abscess may be present when least expected and when all laboratory tests and examinations are negative.

2. Leucocytosis is not always present, and when it is present, is usually low.

3. Pain in the right shoulder is often the most prominent symptom.

4. Liver abscess may be present without any tenderness over the liver.

5. The entamœba may or may not be demonstrable in the aspirated pus, but negative findings do not necessarily prove its absence.

6. The X-ray may be of considerable value in the diagnosis.

The conclusions drawn with regard to the treatment are as follows:

1. Either a general or a local anæsthetic can be used, depending upon the patient's condition and the surgeon's preference.

2. The entire abscess should be drained at one time if possible.

3. The operation is followed by great relief and but little or no shock.

4. It is rarely necessary to drain the abscess a second time, but if necessary drainage may be repeated.

5. Large doses of emetine in the form of emetine bismuth iodide, given by mouth, are essential as this drug helps to clear the source of infection from the bowel and to prevent re-invasion of the liver by the entamœba.

H. M. CAMP, M.D.

Ludlow, A. I.: Liver Abscess: Report of 100 Operations. *Surg., Gynec. & Obst.*, 1923, xxxvi, 336.

The author reports a series of 100 cases operated upon for liver abscess, the majority of which he believes were amœbic abscesses. The greater number were well-localized, large single abscesses with dense fibrous walls.

The technique of operation usually employed included an incision parallel with the ninth rib, extending outward from a point 2 in. from the right costal margin. A portion of the rib was resected, the diaphragm incised, the liver exposed, and a blunt scissors inserted into the abscess cavity through a small incision in the liver capsule. Any septa present were broken down by blunt dissection, and the abscess was evacuated as completely as possible and packed with gauze. No attempt was made to suture the liver to the chest wall. The pleura was encountered in only a few cases, and in these was sewed without harmful results.

Dakin's solution and hypertonic salt solution, used for irrigation after the removal of the gauze packing, did not hasten healing. Emetine was used

in conjunction with the surgical drainage. The author mentions the importance of not allowing the drainage opening to close too soon, and states that because of the danger of secondary osteomyelitis of the ribs, which developed in three cases, the ends of the divided rib should be covered with periosteum. The mortality in the series reported was 10 per cent.

Ludlow states his belief that the danger of aspiration has been overestimated, and that in a series of cases now under observation the aspiration method combined with the use of emetine is being carried out with promise of good results.

SUMNER L. KOCH, M.D.

Monse, E.: The Surgery of Gumma of the Liver (*Zur Chirurgie des Lebergumma*). *Beitr. z. klin. Chir.*, 1923, cxxviii, 148.

The author reports a case in which a gumma in the right lobe of the liver of a woman 37 years of age was excised through healthy tissue. He then discusses the frequency of syphilitic diseases of the liver and their clinical aspects and treatment, especially the indication for surgical interference. He advocates a Wassermann test in all cases of doubtful tumors in the upper part of the abdomen. If the diagnosis then remains doubtful, exploratory laparotomy, biopsy, and microscopic examination are indicated. Threatening or already present danger to neighboring organs due to contracting processes in the region of a gumma or a histologically doubtful tumor indicates removal. Under favorable circumstances, well-circumscribed, pedunculated, gummatous tumors may be removed radically. When this is impossible, specific treatment should be given.

FRANGENHEIM (Z).

Denéchau, D., Fruchaud-Brin, H., and Agoulon, P.: Four Cases of Tertiary Syphilis of the Liver of a Pseudo-Surgical Type. The Importance of Pain in Tertiary Hepatitis (*Quatre cas de syphilis tertiaire du foie à forme pseudo-chirurgicale. De l'importance de la douleur dans l'hépatite tertiaire*). *Bull. et mém. Soc. méd. d. hôp. de Par.*, 1923, 38. xxxix, 556.

The authors report four cases of tertiary syphilis of the liver in which the diagnosis was difficult and surgical intervention was considered or done. Laparotomy was performed in two cases. One of the two other patients refused to submit to operation and the other was a poor surgical risk.

Only two of the patients gave a history of syphilis, and only two had a positive Wassermann reaction. The hepatic lesion in the two cases with a history of syphilis occurred from three to seven years after the initial lesion. In two of the cases there was an irregular fever for several weeks but this subsided after the institution of anti-luetic treatment. In three of the cases the liver was greatly enlarged. In one case there was a tumor in the left hypochondrium which suggested a hydatid cyst of the spleen. In three cases the pain was intense.

In all cases, arsenical treatment, begun as soon as the diagnosis of syphilis was made, gave excellent results.

ROSCOE JEPSON, M.D.

Hartmann: Wounds of the Choledochus (Blessures accidentelles du choledoque). *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 546.

Hartmann reports the case of a patient who was still in excellent health twelve years after an end-to-end suture of the choledochus done by Gosset, and cites also a case in his own practice, that of a patient who was in excellent health for ten years after reconstruction of the common duct.

Injuries to the choledochus occur most frequently during a cholecystectomy which is begun at the ducts, but a few have occurred when the fundus of the gall-bladder was detached first. The author emphasizes the importance of isolating and identifying the different elements of the biliary tract before ligating and cutting them.

ROSCOE JEPSON, M.D.

Slocker La Rosa, E.: The Artificial Common Duct (El coledoco artificial). *Clin. y lab.*, 1923, i, 417.

In Spain the number of cases of biliary disease coming to the surgeon is constantly increasing because of greater accuracy in the diagnosis and increasing confidence in the results of operation.

Slocker reports cases of obstruction of the common duct, in which Vater's ampulla, which was incised and sutured, subsequently become retracted and necessitated a second operation. In the secondary operations Slocker formed an artificial common duct by means of a rubber tube. This tube acted as a dilator, softened the tissue in its vicinity, and served as a framework for the restoration of the incised common duct, preventing contraction of its lumen. As stenosis of the outlet of the duct is apt to be caused by calculi or by adhesions due to infection, the rubber tube should be introduced as far as the lumen of the duodenum and should be left until it is expelled spontaneously. It is bad practice to withdraw the tube through an opening in the duodenum when its purpose is fulfilled as this is apt to cause the formation of a duodenal fistula.

W. A. BRENNAN.

Apperly, F. L., and Cameron, G.: A New Test for Pancreatic Efficiency: An Aid to the Diagnosis of Gall-Bladder Disease and Certain Obscure Dyspepsias. *Med. J. Australia*, 1923, i, 521.

The new test reported was devised to estimate the alkali-producing power of the pancreas, one of the most important functions of this organ. The alkali is measured indirectly by utilizing the fact that gastric acidity is normally limited by a reflux of pancreatic alkali from the duodenum and acid introduced artificially into the stomach is neutralized by this reflux. The actual test is carried out as follows:

A Rehfuß tube is passed and the fasting contents of stomach are removed. Two hundred and

fifty cubic centimeters of warm 0.4 per cent hydrochloric acid are then introduced into the stomach and 5-c.cm. samples are aspirated every fifteen minutes until the stomach is empty. The samples are titrated for free acid and a curve is plotted from the results. Two and six-tenths grams of sodium bicarbonate dissolved in water are given to prevent the development of headache at the completion of the test. In cases of pancreatic defect the rate of neutralization is greatly reduced.

This test has been carried out in six cases. In none except one of pyloric obstruction did it fail to indicate pancreatic deficiency. The authors do not claim that it gives any more complete information regarding pancreatic function than other tests, but advocate its use in conjunction with other tests for the diagnosis of obscure dyspepsias.

JOHN W. NUZUM, M.D.

Peutz, J. L. A.: The Differential Diagnosis of Pancreatic Lithiasis (Zur Differentialdiagnose der Pankreolithiasis). *Deutsche med. Wchnschr.*, 1923, xlix, 178.

For the diagnosis of pancreatic disease no one method is specific, and even with the combined use of all the usual methods many problems still remain. Peutz does not agree with Wallis that the presence of diastase in the blood and urine with a positive Loewi test and the excretion of sugar in the urine or at least an alimentary glycosuria constitute the chief bases of a reliable diagnosis. In his opinion, physical examination of the topographical relationships, repeated microscopic examination of the fæces, and the use of the duodenal tube to test the excretory function of the pancreas, particularly with regard to the ferment content of the duodenal juice, remain the best standby in the diagnosis. The diagnosis of pancreatic calculi is difficult because these, like gall-stones, may not cause clinical symptoms.

With regard to the differential diagnosis Peutz agrees with Albee and cites as significant symptoms intermittent pain in the gastric region, the profuse vomiting of bile, resistance in the left epigastrium and mesogastric regions, possibly concomitant alimentary glycosuria or diabetes, and the signs of faulty digestion and resorption of fat and protein. The diagnosis of pancreatic calculi can be established only by exclusion and then only with considerable reserve. Every condition arising in the biliary passages must be excluded. Peutz refers here to the estimation of the bilirubin content of the blood serum according to Hijmans van den Bergh and examination of the duodenal juice for abnormal biliary products and ferment content.

According to the suggestion of Thiborn, von Kern and Wiener, Peutz used pilocarpine to stimulate the secretion of the pancreas in a young girl believed to have pancreatic calculi, believing that by this procedure the stone would be forced out or, because of obstruction to the secretion, the diastase content of the blood would show an increase.

The latter was the case. As the roentgen-ray plates showed small shadows in the region of the pancreas, the diagnosis was apparently strengthened. Operation disclosed small calcified mesenteric lymph nodes.

In a second case, that of a woman 77 years old, the heavily calcified wall of an aneurism of the splenic artery, which was abnormally tortuous and hidden by the pancreas, lead to the erroneous diagnosis of stone.

PLENZ (Z).

Simmonds, M.: Pancreatic Lithiasis (Ueber Lithiasis pancreatica). *Fortschr. a. d. Geb. d. Roentgenstrahlen*, 1923, xxx, 81.

In the roentgenograms of a number of autopsy specimens of the pancreas Simmonds found very distinct shadows of pancreatic calculi. From this he draws the conclusion that pancreatic calculi might possibly be roentgenologically diagnosed during life.

In 36,000 autopsies Simmonds found pancreatic stone formations in nineteen. Fifteen carefully studied cases were those of men between 34 and 57 years of age; six had been alcohol addicts and nine had been diabetic. Colics had been present in only two cases; therefore the diagnosis was not made during life.

As a result of the stone formation, chronic catarrh of the pancreatic ducts developed, the ducts becoming dilated and filled with watery mucus or purulent contents. This resulted in a diffuse inflammatory infiltration, indurative transformation, and final destruction of the entire organ. Usually the stones were multiple and ranged in size from that of a lentil to that of a hazelnut. KAPPIS (Z).

Kahn, M. H.: The Diagnosis of Spleen Function. *Am. J. M. Sc.*, 1923, clxv, 214.

The histologic details of the spleen are important as an indication of its function. The spleen sinuses are a dense plexus of capillary spaces. On one side they are in contact with the arterial capillaries and on the other with the veins. It is assumed that the blood entering the pulp from the arterial side must pass through the spleen sinuses to be led off through the veins. This transmigration is permitted by stomata in the walls of the sinuses. The capillaries of the spleen, therefore, are either in contact with the sinuses which in turn are connected with the veins or end directly in the pulp in contact with the pulp cells. The hæmolymp glands are a special type of structure closely related to the spleen. After splenectomy, they increase in size, containing many large red blood cells free in the meshes of the reticulum and filling up the lymph channels between the follicles.

The parenchyma of the spleen consists of a mass of cells. According to their morphology without reference to their origin the varieties of pulp cells are: (1) small mononuclear lymphocytes, (2) mononuclear, polymorphonuclear, and multinuclear leucocytes, (3) nucleated red blood cells, (4) mature red

blood cells, (5) large cells enclosing red blood cells or pigment granules (phagocytes), (6) free pigment granules, (7) giant cells with megacaryocytes occurring only in young animals, and (8) blood platelets. The large leucocytes (2) are most numerous. The lymphocytes (1) are next in number and the phagocytes (5) are third.

It is possible that the malpighian follicles are the physiological place of origin of the functioning cells produced in the spleen. The theory that the different regions of the spleen have different functions is supported by the fact that X-ray radiation of rats first destroys the cells of the follicles, the pulp elements remaining unchanged until after a much longer exposure. The different reaction of pulp and follicle in the leukæmias also supports this theory. In myelæmia, the pulp shows hypertrophy, whereas in the lymphatic form the follicle shows hypertrophy.

The determination of the various functions of the spleen has been based on: (1) cytologic analysis of the blood; (2) chemical analysis of the blood; (3) the resistance of the red blood cells; (4) the relation of the hæmoglobin to hæmatin and biliary pigments; (5) the relation of the spleen to iron metabolism; (6) the effects of splenectomy; (7) the effects of spleen feeding; (8) the effects of X-ray radiation; and (9) the clinical signs of functional disturbance of the spleen.

The functions of the spleen are enumerated by the author as follows: (1) blood formation, (2) blood destruction, (3) a rôle in iron metabolism, (4) a regulating influence on the blood-producing organs, (5) a function concerned with digestion, (6) a cholesterolinogenic function, (7) internal secretion, and (8) detoxication.

Blood formation. There is no doubt that the spleen is a leucopoietic organ. The venous blood of the spleen shows many more (seventy times as many) white blood cells than the blood of the splenic artery and many more than that of the vein of any other organ of the body. The number of polynuclears is greater in the splenic vein than in the artery, whereas the number of mononuclear cells is greater in the artery. The focus of origin of lymphocytosis is the spleen follicle, and the lymphocytes circulate from here through the red pulp.

Blood platelets are not present physiologically in the liver, lymph glands, or bone marrow, but are found in the blood channels of the spleen. Following splenectomy, a remarkable increase of these elements takes place in the parts mentioned.

The intramuscular injection of epinephrin contracts the spleen one-third. Frey's adrenal test for the hemopoietic function of the spleen consists of the subcutaneous injection of 1 mgm. of adrenalin. It is assumed that normally a distinct increase of leucocytes in the peripheral circulation with a relative lymphocytosis takes place in twenty minutes. In one hour there may be a still further increase. In disease of the spleen the increase of leucocytes is slight or absent and there is no relative

lymphocytosis. This reaction is negative after extirpation of the spleen in dogs.

Blood destruction. Disintegration of the cells by fragmentation without loss of hæmoglobin while they are still circulating has been found. The shape of these cells in the peripheral blood and the spleen is to some extent peculiar to the animal species. The constant presence in the spleen of an accumulation of poikilocytes which are subdividing, and of microcytes, and the presence of these elements in the circulating blood indicate that the red cells disappear, in part at least, by fragmentation.

One normal function of the spleen, therefore, is the selection of the red blood cells which are to undergo destruction and of those which are to continue in circulation.

The relation of splenic function to blood destruction and jaundice. When hæmoglobin is set free in the portal circulation a larger amount is held by the liver and converted rapidly into bile pigment than is the case when it is set free in the general circulation. Under the former conditions, overloading of the liver with bile pigment occurs more readily and jaundice is more apt to develop. This mechanical influence accounts for the lessened tendency after splenectomy to the jaundice which follows blood destruction due to hæmolytic agents. Whether the spleen is an active factor in destroying the erythrocytes, or whether it plays merely a passive part as a place for deposition of disintegrating cells, there can be no question that in this organ a large number of cells undergo their final disintegration after the action of hæmolytic poisons. The hæmoglobin there liberated passes by the portal system directly to the liver. When the spleen is removed, this disintegration occurs in other parts, notably the lymph nodes and bone marrow, and the hæmoglobin passes, not into the portal, but into the general circulation, from which it reaches the liver more gradually and in a more dilute form.

In hæmolytic jaundice there is excessive fragmentation and destruction of blood in the spleen-liver system because the circulating erythrocytes are unusually fragile. There is, however, no bile in the urine, but bilirubin is found in the blood and urobilin in large amounts in the stools and the urine. The bone marrow shows signs of hyperfunctioning. One member of a family with this disease may have merely enlargement of the spleen without jaundice or marked anæmia, while another may have an enlarged spleen, anæmia, and urobilinogenuria but no jaundice, and a third may have all of these. The enlargement of the spleen may be a work hypertrophy. The jaundice is not an index of the gravity of the condition.

The rôle of the spleen in iron metabolism. Chevalier believes that the source of origin of the iron conditions its distribution in the body and its output. He therefore speaks of an "excretory tissue" and an "assimilative tissue." The skin, liver, and kidney epithelium he places in the first class and the macrophages or Kupfer cells of the spleen and liver,

the endothelial cells of the skin, and interstitial perivascular cells in the second class. These he names "siderocytes." The spleen serves first as a storehouse for siderocytes and second to stimulate the activity of siderocytes in other organs of the body.

The regulating influence of the spleen on blood-producing organs. In some indirect way the spleen exerts a regulating influence on the blood-producing organs, steadying the factors which direct normal production and destruction. Stradomsky seems to have demonstrated that the spleen has a two-fold hormone action on the bone marrow, viz., an inhibiting action on the production of red corpuscles in the bone marrow, and a stimulating action increasing destruction of these cells. Normally, these two influences balance each other, but when the spleen hormone is abnormal or lacking, the bone marrow produces unlimited quantities of red cells and their quality deteriorates. The immediate increase of all cells after splenectomy suggests the removal of some factor that either restricts the production of white cells or destroys those that have passed their usefulness.

The function of the spleen with regard to digestion. A definite pepsinogenic function of the spleen has not been demonstrated. The relation of the spleen to gastric secretion is probably merely vascular, the diminution in the amount of the juice secreted after splenectomy being attributable to a decrease in the gastric blood supply due to injury to the gastrosplenic circulation.

Internal secretion. The hypothesis that the spleen produces an internal secretion is supported by: (1) the changes in the erythrocytes after splenectomy, (2) the modification of the blood picture in hyperplasia of the spleen which, in some instances at least, is ameliorated by splenectomy, and (3) the specific effects on the red blood corpuscles of the injection of splenic extract. The chief function of the spleen is the removal from the circulation of the disintegrated erythrocytes; the splenic cells elaborate this material, producing an internal secretion from either the stroma or pigment portion. This internal secretion reduces the resistance of all the red blood corpuscles, the effect amounting to actual destruction of the older cells. Finally this internal secretion, possibly after modification by the liver, stimulates the erythrogenic function of the bone marrow and is used up in the formation of new corpuscles.

Detoxicating function. The spleen is derived from mesoblastic tissue and is probably concerned largely with the filtration of certain substances from the blood, the product of its activities being delivered to the liver through the splenic vein.

The effects of splenectomy and compensation for splenic function. After splenectomy, the lymph glands of the greater curvature of the stomach and the omentum become hypertrophied and distinctly red, and new ones develop in the neighborhood of the extirpated spleen. Hyperplasia of the lymphatics also gradually develops, first in the vicinity of the

portal vessels and then inside the liver lobes. This hyperplasia is evidently a compensating process in the lymphatic elements in the depths of the liver and explains the increase in size of the liver which follows removal of the spleen.

Physical diagnosis of the spleen. To estimate the size of the spleen accurately Chauffard draws a line from the middle of the axilla to the trochanter region, the arm being held above the head. This line serves as the base from which the ovoid spleen is palpated and percussed and its outline marked on the skin. A line is then drawn from the base line, axially, to the forward limit of the spleen. This axial line is bisected in the center by a line perpendicular to it. Measurement of these two lines gives the approximate size of the spleen.

Stefani, A.: Experimental Research on the Importance of the Spleen in the Production of Agglutinins (Ricerche sperimentali sull'importanza della milza nella produzione delle agglutinine). *Sperimentale*, 1922, lxxvi, 361.

The author's investigations were made under the direction of Banti in the Institute of Pathological Anatomy in Florence. The experiments were made on normal and splenectomized rabbits. The typhoid bacillus was used as an antigen. The blood of the normal rabbits showed small quantities of agglutinins two days after the injection of the typhoid bacilli. These increased slowly for from twenty-four to forty-eight hours and then suddenly increased very rapidly so that the maximum was reached within two or three days. They then decreased for about twenty-five days until the agglutinating power was 1:100. In splenectomized animals the curve of production of agglutinins followed that of the normal animals but the maximum peak was much lower and the minimum was reached in from fifteen to nineteen days instead of twenty-five days.

W. A. BRENNAN.

Krumbhaar, E. B., and Musser, J. H., Jr.: The Effect of Splenectomy on the Hæmopoietic System of Macacus Rhesus. *Arch. Int. Med.*, 1923, xxxi, 686.

Because of the diversity of results reported following splenectomy in different animals, Krumbhaar and Musser thought it advisable to study some of the changes produced in the hæmopoietic system of the monkey by removal of the spleen. The monkey was chosen because it is the animal most closely related to man. The animals and the conditions under which the blood study was done were standardized as closely as possible, and control monkeys were used in all of the experiments. The results are summarized as follows:

1. In the monkey, splenectomy produces an anæmia which is less than that produced in man or the dog. The resistance of the erythrocytes is increased and the number of reticulated erythrocytes is diminished.

2. No signs of a blood crisis are found.

3. A slight increase in the total leucocyte count is associated with an absolute and relative increase in the polymorphonuclears and a decrease in the small lymphocytes.

4. The monkey is resistant to toluylenediamine hæmolytic agent.

5. At early periods after splenectomy, the bone marrow is slightly, if at all, hyperplastic, but by the fifth month cellular hyperplasia is marked and continues marked for many months.

6. The visceral lymph nodes are more prominent after splenectomy.

The authors draw the following conclusions:

1. A transient post-splenectomy anæmia results chiefly from lessened blood formation due perhaps to the loss, with the spleen, of a substance which normally stimulates the bone marrow.

2. The persistent increased resistance of the erythrocytes is one of the most important results of splenectomy from the point of view of therapeutics.

3. The changes in the bone marrow, the lymph nodes, and the stellate cells of the liver of splenectomized monkeys indicate that these tissues take over the spleen's share in disposing of waste erythrocytes and their disintegration products.

4. The different response of various animals to splenectomy is partly explained by the difference in the relative spleen- and body-weights in the various species.

C. J. GLASPEL, M.D.

Eppinger, H.: The Splenomegaly of Hepatic Cirrhosis (Nuestra opinion sobre la esplenomegalia de las cirrosis hepaticas). *Semana méd.*, 1923, xxx, 604.

In many cases of cirrhosis with splenomegaly splenectomy is an extraordinarily beneficial operation. As a rule such symptoms as icterus, pruritus, a hæmorrhagic tendency, and anæmia are favorably influenced and the improvement in the general condition may persist for a number of years. Therefore, splenectomy may cause a regression of certain symptoms which up to the present time have been attributed to hepatic conditions alone. Extirpation of the spleen ought to have a favorable influence also upon the changes in the liver, but while the cirrhotic process may be arrested, there can be no question of cure.

W. A. BRENNAN.

Cignozzi, O.: Malarial Splenomegaly and Its Complications (La splenomegalia malarica e le sue complicazioni). *Policlin.*, Rome, 1923, xxx, sez. chir., 57.

Cignozzi reports his experience with splenomegaly during a period of twelve years.

He believes that the treatment of the enlarged malarial spleen adherent in its normal situation should be medical, whatever the volume of the organ. Because of the efficacy of such treatment and because of the physiological importance of the spleen, the greatest caution should be exercised in recommending splenectomy.

Surgical treatment is usually rendered necessary, however, by the complications of the malarial enlarged spleen. These include spontaneous rupture of the spleen; rupture due to trauma; rupture caused by a penetrating wound; splenic, perisplenic, and subphrenic abscesses; parasitic cysts; chronic malarial enlargement of the ectopic spleen; ectopia of the spleen with latent chronic malarial infection; splenic infarcts and hæmatic cysts in the ectopic malarial spleen; necrosis in the ectopic spleen with acute torsion of the pedicle; and subacute and chronic torsion of the ectopic spleen.

Cignozzi has observed seventeen cases of splenomegaly with various complications of the types mentioned. Fifteen were treated operatively and two were not operated upon because of the patient's serious condition. The operative mortality was 7 per cent.

W. A. BRENNAN.

MISCELLANEOUS

Beck, H. G.: Eventration of the Diaphragm: Report of an Instance and Discussion of the Clinical Aspects of the Anomaly. *Ann. Clin. Med.*, 1923, i, 362.

Prior to the introduction of roentgenology not a single case of eventration of the diaphragm which came to autopsy and was reported in the literature was diagnosed during life.

The condition is rare, occurring in relation to diaphragmatic hernia in the ratio of about 1 to 37.

Beck believes that although the symptoms may not appear until late, the condition is congenital. He bases this opinion on the fact that it occurs in the newborn and is frequently associated with other congenital defects.

The chief diagnostic features are illustrated by a case report.

W. E. SHACKLETON, M.D.

Mann, A. T.: Diaphragmatic Hernia. *Minnesota Med.*, 1923, vi, 285.

With the recent development of X-ray diagnosis, diaphragmatic herniæ are found more frequently than formerly. In every case the attention of the diagnostician must be caught by some feature which indicates the need for a roentgenological examination. Many excellent articles have been written recently on the subject because of the large number of traumatic diaphragmatic herniæ which occurred during the war and because of the advance in diagnosis with the X-ray.

The author reports two cases. The first was that of a man 30 years of age. The hernial sac contained the lower half of the stomach and almost the entire duodenum. The second case was complicated by active tuberculosis. Treatment of the complication has been recommended, and operation will be considered later.

The symptoms of diaphragmatic hernia vary according to the size of the hernia, the amount of constriction at the ring, and the organ or organs involved. They include reflex indigestion, ulcer of the stomach, and obstruction of the intestines. Sometimes there may be no symptoms. Pressure on the heart may cause tachycardia and dyspnoea. In some cases there may be tympany or succussion where normal lung resonance should be present. The X-ray findings are usually conclusive. The arch of the diaphragm is clear and often higher than normal, and abdominal viscera protrude into the thorax. The hernia is usually located on the left side as the right side is protected by the liver.

There are two methods of approach in the treatment of this lesion—through the chest and through the abdomen. The former permits a closer approach to the opening in the diaphragm and easier and more accurate suturing. Formerly, the artificial pneumothorax thus produced was greatly feared, but during the World War this was shown to be of little importance.

Abdominal complications and adhesions indicate that the approach should be made by a high right rectus or midline incision. In certain cases in which adhesions may be extensive in both the thorax and the abdomen the combined thoracic and abdominal incision may be necessary.

MERLE R. HOON, M.D.

Wilensky, A. O.: Drainage in Intra-Abdominal Infection. *Ann. Surg.*, 1923, lxxvii, 558.

The author suggests that an immediate microscopic examination of the exudate present in intra-abdominal infections may serve as a basis for determining the necessity for drainage. A smear should be made of the exudate and stained by Gram's method, the number of organisms present being estimated by an examination of several fields.

Of eleven cases in which a varying degree of inflammatory exudate was present, ten showed no organisms, and one only an occasional organism. None of these cases was drained, and the postoperative course in all of them was uneventful.

SUMNER L. KOCH, M.D.

GYNECOLOGY

UTERUS

Polak, J. O.: The Life History of the Double Uterus. *N. York State J. M.*, 1923, xxiii, 107.

The double uterus is the result of an arrested or faulty absorption of the septum between the two müllerian ducts. The two parts may be equal or unequal, and there may be a complete septum or mere vestiges of a septum between them. The following types are recognized: the uterus bicornis unicolis, the uterus bifidis, the uterus didelphys, and the uterus unicornis with a rudimentary horn. In the uterus didelphys the two component halves are completely separate but each has only one tube, ovary, and round ligament. The vagina may be either double or single. In the uterus bicornis the two halves are united to some extent at their lower ends. In the uterus unicornis there is an undeveloped horn attached to the main body at or just below the level of the internal os.

There may be no symptoms to direct the attention of either the subject or the physician to the anomaly. Menstruation is seldom altered, though it may occur every two weeks, every month, or only once in every two months. Sterility is comparatively uncommon. Miscarriage and premature labor are very common. Pregnancy may occur in one horn or in both horns of the uterus, and superfetation is possible.

Labor is frequently normal, but many abdominal complications are reported. Obstruction or rupture may occur. The presentation is often abnormal; the transverse position is frequent. Abortion and postpartum bleeding are common. The double uterus is prone to infection as uterine drainage is always impaired. When pregnancy takes place in the rudimentary horn of a bicornate uterus conditions comparable to an ectopic pregnancy may be brought about. The syndrome is very constant and suggestive; viz., the usual signs of pregnancy with recurrent shooting pain through the affected side, persistent unilateral tenderness in the lower abdomen, and an increasingly sensitive tumor.

H. W. FINK, M.D.

Boldt, H. J.: The Kielland Operation for Prolapsed Uteri. *Surg., Gynec. & Obst.*, 1923, xxxvi, 742.

Kielland asserts that in more than 150 cases subjected to his operation he has not seen one recurrence. The technique described has been used since 1911.

Kielland's modification refers principally to the treatment of the vaginal portion. This is not amputated but is utilized to prevent recurrence. The exclusion of a recurrence depends, not upon a lifting, suspension, or fixation of the vaginal portion, which may be loosened by subsequent intra-

abdominal pressure, but upon static factors. The position of the uterus is straight and parallel with the axis of the vagina. Intra-abdominal pressure acts on the posterior surface of the uterus and transversely to its long axis. Therefore it presses the uterus against the posterior vaginal wall rather than out of the vaginal outlet.

Kielland claims that as no levator suture is used unless rectocele is present, the results prove that levator suturing is not necessary.

Twelve illustrations show various points in the technique of this operation.

C. H. DAVIS.

Bell, W. B.: Intrinsic Dysmenorrhœa. *J. Obst. & Gynec. Brit. Emp.*, 1923, xxx, 119.

By the term "intrinsic dysmenorrhœa" the author designates the pain which is due to some inherent abnormality in the structure of the organs of menstruation or the physiological processes connected with that function. The term "extrinsic dysmenorrhœa" is used to denote the menstrual pain due to the presence of acquired pathologic lesions in or near the pelvic viscera.

The pain in intrinsic dysmenorrhœa may be premenstrual or both premenstrual and intra-menstrual. Very rarely is it intermenstrual.

Intrinsic dysmenorrhœa may be due to one of the following local causal factors:

A. Morphological anomalies:

1. Underdevelopment of the uterus:

- a. Underdeveloped uterus of normal shape.
- b. Underdeveloped uterus with or without underdeveloped ovaries, with a conical cervix and a pinhole os externum or a hypertrophied cervix.
- c. Underdeveloped uterus with acute flexion (cochleate uterus).

2. Gross malformations:

- a. Divided uterus, due to imperfect fusion of the müllerian ducts.
- b. Atresia of the cervix or vagina with a single or divided cavity.
- c. Accessory occluded uterine cavities.

B. Physiological anomalies:

1. Intra-uterine clotting of menstrual blood with the expulsion of blood casts of the uterine cavity.
2. Excessive exfoliation of the endometrium (membranous dysmenorrhœa)

HARRY W. FINK, M.D.

Meaker, S. R.: The Practical Management of Dysmenorrhœas. *Boston M. & S. J.*, 1923, clxxxviii, 1000.

From the clinical point of view there are undoubtedly different types of dysmenorrhœa, and

some sort of grouping must be attempted before the problem can be handled. As a pathologic classification is inadequate in a condition which often presents no anatomical pathology, a grouping by symptoms offers the most satisfactory working basis.

From the latter viewpoint cases of dysmenorrhœa fall into two groups. In the first, which the author calls Group A, the clinical picture is as follows:

The pain begins from twenty-four to forty-eight hours before the flow. It is frequently relieved as the flow becomes well established but may persist throughout the period. In character it is dull, dragging, and constant, and is felt throughout the lower abdomen. It is very often accompanied by backache and sometimes by pain in the thighs. Nausea, vomiting, and headache are frequent. The amount of the flow is sometimes normal, but often increased. Leucorrhœa and other intermenstrual pelvic symptoms are common.

This will be recognized as the picture of chronic passive congestion of the pelvis, upon which each menstrual period superimposes an acute phase. Even the headaches and gastric symptoms, commonly called reflex, may be due to congestion of the meninges and gastric mucosa resulting from an abnormal endocrine-sympathetic balance. This type of dysmenorrhœa is nearly always accompanied by definite pelvic pathology. The list of conditions commonly responsible includes pelvic inflammation in all its phases, chronic passive congestion from faulty sexual hygiene, fixed retroversion-flexion of the uterus, fibroid tumors, and occasionally severe chronic constipation. The onset of this type of dysmenorrhœa is usually subsequent to puberty, and coincides with the development of the underlying abnormality. Cases in Group A form about 10 per cent of virginal dysmenorrhœas. Among married women they are relatively much more common; in general, a case of this type may be expected to become worse rather than better after marriage.

The clinical picture of Group B is very different. The pain begins approximately with the flow—at any rate, not more than an hour or two before or after. Ordinarily it lasts only a few hours. In character it is usually intermittent, spasmodic, and cramp-like, though occasionally it is described as a burning or boring pain; it is nearly always felt in the lower mid-abdomen over the uterus. Nausea and vomiting are fairly common, but headache is relatively uncommon. Marked weakness and general nervous irritability are often encountered. The amount of the flow is usually normal, but sometimes diminished. Intermenstrual pelvic symptoms are, as a rule, absent.

This type of condition is best classified as a disordered reflex. The painless, easy, rhythmic uterine contractions of normal menstruation are replaced by irregular, spasmodic, and painful contractions producing usually a typical cramp or colic, and occasionally a steady tenesmus-like pain.

The cause of a disturbed reflex may be located on the afferent sensory limb of the reflex arc, in the central nervous system, or on the efferent motor limb of the arc. Among dysmenorrhœas of Group B are cases in which the disturbance is in each of these localities, and on this basis Group B is divided into Subgroups, B₁, B₂, and B₃.

In Subgroup B₁ the reflex is upset by excessive sensory stimuli coming from the endometrium and evoking corresponding excess motor responses from the uterine muscle. Any endometrial condition which produces local irritability may be responsible—polyps, small submucous fibroids, or the so-called exfoliative endometritis which gives rise to membranous dysmenorrhœa. The symptoms of this subgroup is that of Group B in general plus a somewhat increased menstrual flow containing clots or membrane and often an intermenstrual leucorrhœa. Subgroup B₁ includes about 10 per cent of virginal cases.

In Subgroup B₂ the reflex is overactive because of conditions in the central nervous system. The condition is characterized by a general nervous hypertension, of which the patient may or may not be conscious, and increased nervous irritability, a low threshold of stimulation, and a diminished resistance at the synapses. About 60 per cent of virginal cases belong to this group. Pelvic pathology is absent. The development of this state is favored by the complex conditions under which the modern girl lives. The strenuous life, scholastic, industrial, or social, is the rule. When to this are added irregular hours, unbalanced diet, and lack of exercise, it is surprising that nervous instability in girls is not more common. Cases in this subgroup present the general symptoms of Group B. There is no suggestion of pelvic pathology.

The remaining 20 per cent of virginal cases belong to Subgroup B₃ in which the cause of the disturbed reflex action lies in the musculature of the uterus. The most frequent condition present in these cases is pelvic hypoplasia.

This subgroup is to be distinguished by certain symptoms in addition to the usual ones of Group B. Pain of the steady burning or boring type located directly over the uterus is fairly common. The flow is apt to be diminished in quantity and irregular and interrupted. It may contain clots.

The preliminary step in all cases of Group A is to remove, if they are present, two defects—faulty sexual hygiene in the married and chronic constipation. Both conditions are fruitful sources of pelvic congestion, and their adjustment will sometimes result in a permanent and complete cure of dysmenorrhœa of this type.

A satisfactory régime for ordinary cases includes the following six items which are given in the order of their importance: (1) the enlisting of the patient's interest and co-operation, (2) regularity of habit, (3) a large fluid intake, (4) diet, (5) abdominal exercise and massage, (6) small doses of liquid petrolatum at the beginning of treatment.

In Subgroup B₁, as in Group B generally, a very useful palliative remedy is found in the benzyl esters, which relieve the cramp-like or colicky type of pain arising from the spasmodic contraction of smooth muscle.

The radical cure of this type of dysmenorrhœa depends necessarily upon local treatment of the endometrium. The first step is an examination with dilatation of the cervix and thorough exploration of the uterine cavity.

In Subgroup B₂ benzyl benzoate serves very well as a palliative agent for the relief of the cramp-like pain. If the patient is definitely of the nervous type it is well to order 10 gr. of sodium bromide three times a day for a week before the period. When nausea and vomiting are conspicuous symptoms, good results are frequently given by corpus luteum, administered in 5-gr. doses three times a day during the premenstrual week.

The keynote of treatment leading to a radical cure in Subgroup B₂ is attention to the general health and hygiene.

The element of suggestion is not to be overlooked. Many girls have been taught by the older generation to regard themselves as semi-invalids during the menstrual period, and in the course of time an abnormal attitude develops which is mental more than physical.

In Subgroup B₃ the palliative action of benzyl benzoate may be tried. To give permanent relief in the type of case presenting hypoplasia of the uterus is a slow and sometimes a difficult matter. The usual treatment includes two items—pelvic exercises and endocrine therapy. The latter cannot be regarded as established on a scientific basis, but must be carried out empirically.

C. H. DAVIS, M.D.

Forsdike, S.: The Treatment of Severe and Persistent Uterine Hæmorrhage by Radium, with a Report upon Forty-Five Cases. *Proc. Roy. Soc. Med., Lond.*, 1923, xvi, Sect. Obst. & Gynæc., 69.

The methods advocated for the treatment of severe uterine hæmorrhage are: (1) hysterectomy, (2) X-ray treatment, and (3) radium treatment. The analysis of a report of forty-five cases treated with radium tends to show that this is the method of choice.

Of the forty-five patients, twenty-six had undergone some form of operation or combination of operations, including dilatation and curettage, the removal of polypi, amputation of the cervix, and oöphorectomy or salpingo-oöphorectomy. Some of them had been curetted more than once. The rest had had medical treatment for variable periods or were so anæmic that any further effort at palliation was contra-indicated.

In all cases dilatation of the cervix and an exploratory curettage were done and when the cervix and vagina were septic a preliminary cleansing treatment was given. In all cases the radium was placed in the uterine cavity and only the gamma

ray was used. The vagina was packed with gauze moistened with liquid paraffin to support the radium and to keep the bladder and rectum away from the source of energy. To maintain the bladder in a flaccid condition a self-retaining catheter was introduced. In some cases it was necessary to stitch the vulva to support the vaginal plug.

Three of the patients were between 20 and 26 years of age, ten between 29 and 38, twenty-two between 39 and 50, and ten between 51 and 55.

In the cases of patients between the ages of 20 and 26, 50 mgm. of radium were used for five hours. In the others, 100 mgm. were employed for twenty-four hours. Forsdike believes that 100 mgm. is an unnecessarily large quantity as in some later cases 75 mgm. had the desired effect.

After the treatment there was no further loss of blood in ten cases, one period in seventeen, two in eleven, and three in four. In five cases a second treatment was necessary. In three of these there was little doubt that the first exposure would suffice, but the patients were so thoroughly frightened by two prolonged shows following the first exposure that it was considered advisable to comply with their demands. In only two of the five cases was anæsthesia necessary.

The only contra-indication is a previous pelvic inflammation. This is a very real danger as the pelvis may become filled with an inflammatory tumor rising into the abdomen, the nucleus of which is an abscess deeply seated in the pelvis and nearly impossible to deal with.

The author's conclusions are as follows:

Radium treatment is the method of choice in all uncomplicated cases of severe and persistent hæmorrhage due to chronic metritis. Inflammatory disease of the tubes and ovaries constitutes the sole contra-indication.

As a rule the radium menopause is not accompanied by any symptoms attributable to action upon the ovaries.

Radium treatment causes the least disturbance of the patient's economic life. C. H. DAVIS, M.D.

Daels, F.: Histologic Pictures Representing the Cure of Uterine Basocellular Epithelioma. *Arch. Radiol. & Electrotherapy*, 1923, xxviii, 1.

In proportion to the intensity of the action of the irradiation upon the cancer cells of the uterine basal-cell epithelium the following phenomena, which are not found in cases of spontaneous degeneration, are observed:

1. Massive and rapid karyorrhexis of the cancer cells without intervention on the part of the blood cells or profound degeneration of the normal tissues.

2. Progressive necrosis caused by pycnosis or achromatosis with eosinophilia or vacuolization of the protoplasm and phagocytosis by polynuclear blood cells. This well-marked phenomenon is here especially characteristic of the action of irradiation.

3. The transformation of the cancer cells into giant cells and giant nuclei, an alteration which

may lead to necrosis with invasion by polynuclear leucocytes or to gradual atrophy with fatty degeneration of the protoplasm and disappearance of those elements without the participation of leucocytes in the process.

Irradiation, especially radium irradiation, first affects the nucleus, causing actual rupture comparable to its effect on the lymphocytes, or the destruction of the nucleus which is sometimes combined with eosinophilia or the megakaryocytic-shaped degeneration which seems to result from nuclear fusion due to loss of karyokinetic power.

The author's observations lead him to the conclusion that the polynuclear leucocytes occur only in association with spontaneous degeneration or radiotherapeutic transformation of the basal-cell epithelioma as a consequence of incidental infections or the necrosis of cancer cells, and that they do not take an active part in the elective regression proper. It must be admitted also that the connective tissue has no active participation in the regression proper and that effective reaction against the cancer proliferation or its agent must be ascribed to the infiltration of lymphocytes.

4. The appearance of giant cells without the characteristics of malignant tissue, sometimes with a distinct follicular shape, and the appearance of true histologic follicles following radium irradiation of cancer alveoli suggest that a substance is liberated to which the body reacts by lymphocytic infiltration and the formation of giant cells. In this connection the histologic findings noted upon the healing of the follicle induced by the experimental injection of killed Koch bacilli should be borne in mind, namely, the formation of giant cells, fusion of the nuclei, the formation of megakaryocyte elements, and progressive liberation and atrophy of those megakaryocytes. These phenomena greatly resemble those observed in cancer regression.

The article is supplemented by twenty-two photomicrographs. C. H. DAVIS, M.D.

Martzloff, K. H.: Carcinoma of the Cervix Uteri: A Pathological and Clinical Study with Particular Reference to the Relative Malignancy of the Neoplastic Process as Indicated by the Predominant Type of Cancer. *Bull. Johns Hopkins Hosp.*, Balt., 1923, xxxiv, 141, 184.

The cells seen in epidermoid cancer of the cervix fall morphologically into three large groups: transitional, fat spindle-cell, and spinal-cell groups.

In the cases reviewed the vaginal mucosa was involved in over 50 per cent, irrespective of the extent of the cervical involvement.

Secondary involvement of the corpus uteri in cervical cancer occurred in 41.3 per cent of the cases in which the entire length of the cervix was involved.

One-third of all the patients seen during the first six months of symptomatic disease, with the exception of those suffering from the spinal-cell type of cancer, had extension of the neoplastic process to the broad ligament.

Less than 10 per cent of the patients with broad-ligament involvement lived more than one year after operation.

The first symptom of the disease in almost 85 per cent of the cases studied was unusual vaginal bleeding, and in 97 per cent some form of unusual vaginal discharge (either bleeding or leucorrhœa) was the primary symptom.

Of all the cancers in the series 52.1 per cent occurred between the ages of 36 and 50 years inclusive.

Of the patients between 31 and 35 years of age, inclusive, 18.6 per cent are living and well today. This is the highest "cure" incidence for any five-year age period in this study.

Of these patients 5.4 per cent gave a history denying pregnancy at any time and any form of vaginal instrumentation.

In 58.8 per cent of the patients operated upon who showed broad-ligament induration on physical examination, this finding signified carcinomatous extension.

The incidence of "cures" was almost twice as high in the cases treated by abdominal panhysterectomy as in those in which a vaginal panhysterectomy was performed.

The total operability of the cases in this study was 46.5 per cent.

The total operative mortality was 14.2 per cent. The operative mortality in the Johns Hopkins Clinic at the present time is between 6 and 7 per cent.

Preliminary curettage performed several days prior to the radical operation for cancer was the procedure employed for 36.8 per cent of the patients who are now living and in good health. From this it may be concluded that a diagnostic curettage not immediately followed by a radical operation for extirpation of the malignant process does not by any means render the prognosis hopeless.

The transitional and fat spindle-cell types of cancer frequently become inoperable early in the disease, and the spinal-cell type and adenocarcinoma before the fifth month.

Eighteen and seven-tenths per cent of the patients operated upon and traced are living and well today.

So-called "five-year cures" were obtained in 26.6 per cent of the cases.

In this study there was no epidermoid cancer of the cervix conforming to basal-cell cancer of the skin in regard to its apparent lack of malignancy.

The histomorphology of the predominant types of cells in epidermoid cancer of the cervix is important in that it indicates the relative malignancy of a given tumor. In this study the spinal-cell type of cancer proved to be the least malignant. The transitional-cell type was next in order of increasing malignancy and the fat spindle-cell type the most malignant of all.

In malignancy the adenocarcinoma falls between the spinal-cell and transitional-cell groups of epidermoid cancer.

Epithelial pearls are of significance only when they are associated with cancers of the spinal-cell type. They then appear to indicate a lessened malignancy of the cervical new growth.

This very careful analysis of 387 cases of carcinoma in the wards of the Johns Hopkins Hospital prior to 1920 is summarized in fourteen tables. The article contains also ten photomicrographs.

C. H. DAVIS, M.D.

Polak, J. O., and Phelan, G. W.: What Constitutes the Surgical Cervix? *Am. J. Obst. & Gynec.*, 1923; v, 640.

The pathologic significance of a tear is not so much its extent as the changes resulting from infection caused by the invasion of bacteria from the vagina, the associated subinvolution, and the passive hyperemia due to the fact that the heavy uterus is always out of the plane of the circulatory equilibrium.

More than half of all cervical injuries present none of these pathologic changes, except perhaps a papillary erosion. The so-called erosion is not an indication for surgery unless it is on the lips of an everted, hyperplastic, indurated cervix.

The authors classify cases into those with: (1) erosion and gland infection without loss of tissue; (2) tears with considerable loss of tissue; (3) cervical hypertrophy and hyperplasia with induration; (4) cystic degeneration; (5) deep bilateral tears with erosion; and (6) stellate or multiple lacerations.

In cases of hypertrophy (intravaginal infection), cystic changes with surrounding hyperplasia, and operation for prolapse in a woman who has passed the menopause, trachelectomy is necessary.

Whenever possible, trachelectomy should be avoided during the child-bearing period as it predisposes to abortion in subsequent pregnancies. Tracheloplasty has not the same effect on pregnancy and is not so often a cause of premature labor and dystocia during delivery.

The ordinary erosion will usually yield to applications of the actual cautery to destroy the excessive lymphoid growth.

Cases of chronic infection of the glandular structures penetrating to a considerable depth the authors treat by the intracervical application of 25 mgm. of radium in capsules for short exposures.

Proper preliminary treatment carried out over a period of weeks before operation will often so improve the local condition, rid the cervix of its œdema, destroy cysts, and cure the infection as to render trachelorrhaphy possible, whereas if no preliminary treatment is given amputation of the cervix may be necessary. It is because of the lack of such preliminary treatment that many cervical operations fail to cure the glandular infections and the associated parametritis.

Tracheloplasty has cured sterility due to excessive cervical hypertrophy or abnormal cervical discharge.

In a certain percentage of cases tracheloplasty and amputation of the cervix have been followed

by pregnancy. In some instances the pregnancy resulted in abortion or premature delivery, but in others was terminated by labor at term.

In 50 per cent of the cases of surgical conditions of the cervix operation will not cure the leucorrhœa unless a long course of preliminary local treatment is given.

Only a relatively small number of cases of sterility are cured by surgical treatment of the cervix. Therefore operation should be done only after a Huhner and a Rubin test have shown that the cause lies in the biochemical changes in the cervical discharge.

EDWARD L. CORNELL, M.D.

ADNEXAL AND PERI-UTERINE CONDITIONS

Marcus, M.: The Radiation of Pain in Lesions of the Fallopian Tube. *Brit. M. J.*, 1923, i, 185.

While the physical signs of disease of the fallopian tube have been minutely described, it is of importance to differentiate more clearly between the subjective symptoms of this condition and those of local peritonitis in the same region. Disease of the tube is evidenced by pain referred to the skin over the area supplied by the spinal segments from which its innervation is derived. According to Head, these segments are the eleventh and twelfth dorsal and the first lumbar, but sometimes the area is wider. Pain over the skin area of the loin, in the iliac fossa, and passing down the anterior surface of the thigh to the knee is a localization sign of considerable value.

The author cites six cases in which there was pain in the iliac fossa and on the anterior surface of the thigh. This localization of skin hyperæsthesia suggests that the tube is represented in the spinal cord by the eleventh and twelfth dorsal and the first three lumbar segments. V. E. DUDMAN, M.D.

Nattrass, J. H.: Autoplasmic Ovarian Transplantation. *Brit. M. J.*, 1923, i, 1051.

The following case report is of interest because the patient has been under observation for thirteen years after the operation for transplantation of the ovaries and a macroscopic and microscopic examination of the transplanted glands was made nine and one-half years later.

In 1911, a caesarean section was performed on the patient, then 17 years of age, for the delivery of a 6-lb. baby. This operation was necessitated by tuberculosis of the hip. To prevent further conception, the ovaries were transplanted into the anterior abdominal wall.

Subsequently, because of the strenuous use of crutches, a ventral hernia developed in the upper part of the scar. In 1920, a fit of coughing caused pain and swelling at the site of the hernia and a diagnosis of irreducible strangulated hernia was made. At operation for the hernia the transplanted ovaries were inspected and a small piece was removed for examination. The ovaries were firmly adherent to the surrounding tissues, and graafian follicles

could be seen and felt. When these were pricked with a knife, liquor folliculi escaped. Microscopic examination showed normal ovarian tissue with a rich blood supply.

The patient has menstruated regularly and her sexual life has been normal. During menstruation the ovaries are slightly tender.

I. EDWARD BISHKOW, M.D.

MISCELLANEOUS

Berger, K.: **The End-Results of the X-Ray Treatment of Cancer at the Freiburg University Gynecological Clinic, 1913-1916** (Dauererfolge der Strahlentherapie des Krebses an der Freiburger Universitätsfrauenklinik von 1913-1916). *Strahlentherapie*, 1922, xiv, 446.

This article is a review of the results obtained in the cases of carcinoma radiated by Kroenig in the period from December, 1912, to December, 1916, and is a supplementary report to the review by Mueller-Carioba on the results obtained by Kroenig in cases of carcinoma treated surgically.

The maximum incidence of carcinoma of the breast falls between the fortieth and forty-fifth

years of age, and that of carcinoma of the cervix of the uterus between the fiftieth and fifty-fifth years. The average age at which carcinoma of the breast develops is 53.4 years, while that of carcinoma of the fundus of the uterus is 52.7 years and that of carcinoma of the cervix 51.6 years.

Of fifty-six carcinomata of the breast treated by radiation, eight remained cured at the end of five years. The average length of life was thirty-five and three-tenths months after the beginning of the disease and twenty-eight months after the beginning of treatment.

Of eighteen cases of carcinoma of the fundus of the uterus, six remained cured at the end of five years. The average length of life after the beginning of the disease was thirty-eight and six-tenths months, and after the beginning of treatment, thirty and nine-tenths months.

Of seventy-six cases of carcinoma of the cervix, six remained cured after five years. The average length of life after the beginning of the disease was twenty-one and four-tenths months, and after the beginning of treatment, sixteen months.

These cases represented all stages of the disease.

SIEGEL (Z).

OBSTETRICS

PREGNANCY AND ITS COMPLICATIONS

Day, H. F.: Diet During Pregnancy. *Boston M. & S. J.*, 1923, clxxxviii, 904.

In order to regulate the weight of the mother and baby and to control such symptoms as nausea, vomiting, constipation, and hyperacidity, the term of pregnancy is divided into trimesters and a suitable diet is offered for each period.

In the first period the mother's general nutrition is most important on account of the frequent morning sickness. Calcium deficiency during this period may be the cause of miscarriage.

The second period is usually one of normal metabolism, but here again the calcium supply must be watched because of the deficiency produced by the calcification of the child's teeth.

The third period is the period of rapid growth of the fetus and inactivity of the mother due to the increased size and weight of the uterus.

First considered in the diet are the vitamins: (1) fat-soluble A; (2) water-soluble B; (3) water-soluble C; and (4) D or X, which is essential to reproduction. Next, are the minerals, iron, calcium, and phosphorus, and then the carbohydrates, proteins, and fats.

Twenty-five cases are cited in which the average weight gain during pregnancy was 14.2 lbs. instead of the usual 20 lbs.

The article is concluded with a very comprehensive list of foods showing the amount of protein and minerals in each portion and a number of well-balanced menus suitable for each period of pregnancy.

WILLIAM B. CAMPBELL, M.D.

Williams, P. F.: Pregnancy and Labor in Very Young and Elderly Primiparæ. *Atlantic M. J.*, 1923, xxvi, 456.

From this study it appears that adolescents are able to stand the strain of pregnancy, labor, and lactation as well as older women. They seem to bear well the brunt of the enormous physical and mental changes of pregnancy and, in many instances, even while earning their livelihood and concealing their condition. The pelvis of these girls reflect to a certain degree their immaturity and perhaps, in some instances, their lack of proper nutrition and care in the formative stage. Their labors fall well within the normal limits of time. The power of expulsion is apparently as well developed as in older women.

The average weight of the infants is somewhat below normal, although variations above that level are sometimes remarkably high. Pregnancy is of normal length and but little assistance is necessary at term. The puerperium is noticeably uneventful.

The youthful mammae functionate normally, and in the majority of cases the breast-fed infants do well while under observation.

Similarly the cases of four elderly primiparæ which were observed by the author refuted the belief that reproduction in the extremely old primipara is fraught with difficulty and danger.

C. H. DAVIS, M.D.

Turck, F. B.: The Pathologic Reaction of Tissue Extract (Cytost) Liberated in Pregnancy. *Am. J. Obst. & Gynec.*, 1923, v, 139.

It has long been known to biologists that a toxæmia from disintegrating tissue occurs during pregnancy and to a less extent during the menstrual periods, adolescence, and the climacteric. In pregnancy both the mother and fetus are affected. The toxin is specific to the species.

The specific antitoxin for this tissue toxin has also been known for some time and has been used to produce immunity.

The findings of the author's experiments taken in conjunction with those of hundreds of others of similar character has led Turck to the conclusion that he has demonstrated that low concentration of homologous cytot stimulates cell mitosis and metabolism. Further, that it directly affects the germ plasma cell and thus determines congenital conditions and heredity.

High concentration of homologous cytot produces the opposite or retrograde effect on the cell, causing degeneration metabolism of the germ plasma cell.

The results of numerous experiments are recorded.

E. L. CORNELL, M.D.

Douay, E., and Rochat, R.: The Diagnosis of Tubal Pregnancy, Cornual Pregnancy (Sur le diagnostic de la grossesse tubaire, la grossesse angulaire). *Gynec. et obst.*, 1923, vii, 216.

Tubal pregnancy is rarely diagnosed until the appearance of complications.

Many cases diagnosed as tubal pregnancies are in reality cornual pregnancies. If the ovum becomes attached to the uterine mucosa at one of the horns, it is very apt to atrophy, develop irregularly, or become cast off and expelled. In a cornual pregnancy the uterus is not enlarged evenly. The affected horn is soft and distended. Hegar's sign is absent, but at the base of the gravid horn there is a soft band which gives the horn an independent motion relative to the uterus. Bar calls this the superior sign of Hegar.

Bimanual examination gives the impression of a double swelling. One swelling is the uterus, which is somewhat larger than an empty uterus, and the other is the gravid horn. The gravid horn is softer

than the uterus except during contraction, when it may be harder than the uterine fundus. After the eleventh week the uterus gradually assumes the form noted in a normal pregnancy.

Cornual pregnancy is usually associated with unilateral pain in the lower abdomen, and frequently with a slight amount of irregular bleeding which often leads to error in diagnosis.

The authors report three cases to show how easy it is to confuse cornual with tubal pregnancy.

In order to diagnose lateral flexion of the gravid uterus the patient is placed in the Trendelenburg position. In cornual pregnancy the enlargement is often antero-lateral, while in tubal pregnancy it is usually posterior and often in the pouch of Douglas. In cornual pregnancy the broad ligaments will be felt beyond the uterus.

Interstitial pregnancy is a pathologic rarity which cannot be differentiated clinically from cornual pregnancy before rupture. The usual course of the former is toward rupture, while that of the latter is toward normalcy.

When the diagnosis is doubtful as to whether the pregnancy is in the tube, the uterine wall, or the horn, the best procedure is to keep the patient under observation. If this is impossible, it is safer to make an exploratory laparotomy.

ROSCOE JEPSON, M.D.

Hayd, H. E., and Potter, I. W.: The Symptoms and Signs of Extra-Uterine Pregnancy At or Near Term, with a Report of Two Cases and the Treatment of Late Ectopic Gestation, Together with a Review of the Literature and Recorded Cases. *Am. J. Obst. & Gynec.*, 1923, v, 601.

In the first case reported both the mother and infant died. No operation was performed. The ectopic pregnancy was disclosed at autopsy. The second patient was operated upon and both the mother and baby are living and well.

In these two cases there were none of the signs of violent rupture of the tube at the sixth, eighth, or tenth week. The women had not lost blood in the early weeks to make them doubt that they were pregnant and their condition was much the same as that in the early months of intra-uterine gestation. They continued to be about until the adhesions which had formed between the bowels and the fetal envelope caused the sudden and alarming symptoms of partial or complete obstruction. In pregnant women who have not been subjected to a previous intraperitoneal operation, obstruction of the bowel is very rare because the pregnant uterine body is smooth and freely movable and, when lifted up, adjusts itself to the distending influences of bladder and bowels in its progressive development.

In neither of the cases reported were the attendants impressed by the loud heart sounds and their more superficial character, by the fact that the baby lay to one side, by the fact that the extremities were more palpable than usual, or by other signs and symptoms given in the classical description of this

condition. On vaginal examination they felt a cervix harder in consistency and outline than was to be expected in a uterus at term, and the resistance to the examining finger of a hard body suggesting a small fibroid tumor low down in the pelvic outlet. Therefore a diagnosis of fibroid tumor complicating pregnancy was made and operation was advised.

Extra-uterine fetation usually calls for surgical relief as soon as possible, whether the embryo is viable or not. If the pregnancy has passed beyond the seventh month, however, the surgeon may wait until the baby is stronger, provided the patient is in good condition and can be kept under close observation.

If the mass can be tied off at both ends, an attempt should be made to remove the sac and placenta. This may be possible if the pregnancy is tubal or tubo-ovarian. If there be much oozing or bleeding, the sac should be packed with 5 per cent iodoform gauze and the placenta left *in situ* or the sac sewed to the abdominal wall, in which case very great caution must be exercised not to disturb the placenta by pulling or tugging on it until it is free in the sac cavity.

The article is concluded with a record of sixty-two authentic cases in which an extra-uterine child was born alive and lived thirty days or longer and the mother also survived. EDWARD L. CORNELL, M.D.

LABOR AND ITS COMPLICATIONS

Arnold, J. O.: Do Present-Day Efforts Toward the Elimination of the Second Stage of Labor Constitute a Forward Step in Practical Obstetrics? *Therap. Gaz.*, 1923, 3s. xxxix, 396.

The author routinely gives morphine and hyoscine in repeated doses during the entire first stage, which prolongs the time of cervical dilatation but decreases trauma to the cervix. He then decides upon the method of delivery—whether it shall be vaginal or abdominal. Vaginal delivery may be effected by forceps or Potter version.

The advantages of the surgical delivery are the removal of the dread of future pregnancies and the conservation of physical strength by preventing exhaustion, trauma, and shock.

WILLIAM B. CAMPBELL, M.D.

Drosin, L.: A Discussion of the Factors Influencing Breech, Cephalic, and Transverse Presentation. *Internal. J. Surg.*, 1923, xxxvi, 205.

Normal presentation is cephalic because the ovum is usually implanted in the upper segment of the uterus and the cord is attached to the lower portion of the fetal abdomen, tending to suspend the fetal head downward.

The basis of abnormal presentations is the law of flotation. According to this law, a solid body immersed in a liquid fulfills one of three conditions according to whether its weight is less than, equal to, or greater than that of the displaced fluid. This law operates when the fetus and cord are too long

for suspension and the fetus floats and rises to the upper limits of the uterus with its lighter extremity or breech at the top and its heavier extremity, the head, at the bottom. Then, according to the law of hydrostatics, the pressure at the lower uterine segment becomes greater than that in the fundus, and by uterine contractions and fetal movements the fetal head is forced up and the breech down.

Failure of absorption of the amniotic fluid, which is probably the cause of hydramnios, predisposes to abnormal presentations, as do also a large fetal head and a narrow pelvis.

WILLIAM B. CAMPBELL, M.D.

Cameron, S. J.: The Technique of Cæsarean Section. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Obst. & Gynæc., 50.

Whitehouse, B., and Featherstone, H.: A Note on Two Cases of Cæsarean Section under Spinal Anæsthesia with Tropicocaine. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Obst. & Gynæc., 55.

Cameron describes the technique used in 107 cases of cæsarean section in which there was only one death. All of the women were rachitic. The incision was made through the rectus sheath on the right side and gauze was packed between the uterus and the parietal peritoneum. When the uterus had been opened the child was delivered as a breech. The uterus was then drawn through the wound and laid on the abdominal wall, where it was turned inside out so that the membranes were expelled. It was then closed with three sutures of silk which were passed through all but the inner layer and superimposed with interrupted catgut sutures. Cameron never operates when the membranes have been ruptured for more than twelve hours or repeated vaginal examinations have been made.

Whitehouse and Featherstone report two cases of cæsarean section performed under spinal anæsthesia with favorable results. The anæsthetic was tropacocaine in 5 per cent solution. The infants were in good condition and the tone of the uterus was preserved. One of the women was a diabetic and the other had placenta prævia. Both of these patients made an uneventful recovery.

H. W. FINK, M.D.

PUERPERIUM AND ITS COMPLICATIONS

Watson, B. P.: The Treatment of Puerperal Infections. *Edinburgh M. J.*, 1923, n.s. xxx, Sect. Edinburgh Obst. Soc., 68.

Recent experience in the treatment of septic wounds has shown that the most important factor is free drainage, and the fewer the antiseptics used and the less the interference the better. In the infected uterus the cervical canal always remains patulous and drainage is assured. It may be helped by placing the patient in the Fowler position and by administering ergot, pituitrin, and quinine. The application of an ice-bag to the abdomen will relieve any pain that may be present and reduce

fever. A free liquid diet should be given, the bowels should be kept open but not severely purged, and if possible the patient should be kept in the open air. Blood cultures should be made at intervals. If there is accumulation of foetid discharges in the vagina a gentle vaginal douche may be given.

The great majority of puerperal infections will yield to this type of treatment. If extension takes place it will become evident in the course of a day or two. A cellulitis should be evident to bimanual palpation in three or four days; a pus tube a little later. As a rule a cellulitis will resolve in a few weeks. In a few cases, however, suppuration will occur and the pus must be evacuated through the vagina or extraperitoneally through the abdominal wall. In cases of pus tube, removal should be delayed, if possible, until the temperature has reached and remained normal for some time. If the temperature remains high and the patient's general condition is deteriorating, the pus may be evacuated through an incision in the posterior fornix, the tube being removed at a later date if necessary. If there is evidence of peritonitis, an incision may be made in the posterior fornix and drainage established.

Thrombophlebitis is evidenced by wide excursions of temperature, repeated chills, and the palpation of thickening on one or both sides of the uterus. Such cases may be dealt with by ligation of the ovarian or common iliac veins. This somewhat heroic treatment has been carried out by many operators with surprisingly good results. If there is evidence of local abscess formation in the uterine wall, hysterectomy may be performed.

What has been said regarding the treatment of puerperal infections occurring after a full-time delivery applies equally to those arising after complete or incomplete abortion. When abortion is followed by fever, curettage of the uterus and intra-uterine manipulation are contra-indicated unless there is severe hæmorrhage. If the abortion is incomplete and a mass is felt projecting through and blocking the cervical canal, the mass may be very gently removed.

If after the temperature has been normal for several days the persistence of bleeding and the patulous condition of the cervix indicate that the abortion is still incomplete, gentle curetting may be carried out. Even after this length of time the temperature will usually rise after the operation, and not infrequently there will be a rigor indicating a blood invasion. In most cases, however, this will be only temporary. C. H. DAVIS, M.D.

NEWBORN

Cruickshank, J. N.: The Hæmorrhages of the Newborn. *Lancet*, 1923, cciv, 836.

From the findings at a maternity hospital the impression is gained that the presence of asphyxial congestion is the essential element in the production of hæmorrhage, that the increase of this congestion by the pressure of the maternal passages is the next

most important element, and that injuries due to abnormalities of presentation or operative interference are third in etiological importance.

The incidence of hæmorrhage in 200 mature and premature infants studied by Kennedy and the author is shown in Table I.

TABLE I.—THE INCIDENCE OF THE VARIOUS GRADES OF HÆMORRHAGE IN 200 MATURE AND 200 PREMATURE INFANTS

Lesion	Mature Per cent	Premature Per cent
Hæmorrhage—all grades.....	80	66.5
Capillary oozings or petechiæ only.....	30	26.5
Gross hæmorrhage.....	50	40
Gross intracranial hæmorrhage.....	32	22.5
Gross intracranial hæmorrhage and visceral hæmorrhage.....	10	12.5
Visceral hæmorrhage without intracranial hæmorrhage.....	13	13
Intracranial hæmorrhage alone.....	22	15
No hæmorrhage.....	20	33.5
Tentorial tears.....	30	12

In comparing the incidence of hæmorrhage in the group of mature cases with that in the group of premature cases the most striking difference is that, while only 20 per cent of the mature infants were free from hæmorrhage, practically 35 per cent of the premature infants escaped. The percentage incidence of most of the types of hæmorrhage was lower in the premature group than in the mature group by a fairly constant amount, but the incidence of meningeal hæmorrhage was the same in both.

From these two series of cases it is evident that two main types of lesion can be distinguished. The most common—hæmorrhage—occurs in about 70 per cent of all the cases, and is distinctly more common in the mature fetus (80 per cent) than in the premature (66.5 per cent). The other type of lesion, intracranial injury, occurs much less frequently, being found in not more than 20 per cent of infants. Like the hæmorrhages, this shows a greater incidence in the mature than in the premature fetus.

From the finding of hæmorrhages in infants which had died during the first few days of life from a cause other than hæmorrhage it is clear that

at least the lesser degrees of birth hæmorrhage are not necessarily fatal. What effect, if any, they have on subsequent health and development is a question beyond the scope of the present study.

In the cases reviewed it was noted that a large proportion of the infants showing tentorial tears were delivered by the breech. This fact tends to confirm the prevalent opinion that the after-coming head is particularly prone to suffer lesions of the dural structure during its comparatively rapid delivery. The influence of operative measures—particularly of version—is shown by the number of premature infants with tentorial tears whose delivery was so complicated.

TABLE II.—THE INCIDENCE OF STILL-BIRTH IN RELATION TO THE VARIOUS GRADES OF HÆMORRHAGE IN 200 MATURE AND 200 PREMATURE INFANTS

Lesion	Mature Per cent	Premature Per cent
Capillary oozing or petechiæ.....	90	65
Intracranial hæmorrhage alone.....	77	56
Intracranial and visceral hæmorrhage..	76	56
Visceral hæmorrhage alone.....	59	76
No hæmorrhage.....	54	43
Tentorial tears.....	84	66

The incidence of stillbirth in the various groups of mature and premature infants shows a difference of 25 per cent in the rate in cases with capillary oozings and petechiæ only. A similar variation—20 per cent—was noted in the rate in cases showing meningeal hæmorrhage alone. The third, and perhaps the most striking, point was the 20 per cent excess of stillbirths among the premature infants with meningeal and visceral hæmorrhages over the stillbirths in the corresponding group of mature infants.

From the examination of these figures it is evident that many infants with extensive birth hæmorrhages are born alive and survive. In a number of the cases investigated death occurred from some quite independent condition such as bronchopneumonia and nephritis, and it is probable that but for the intervention of such a disease, the child would have survived beyond the period of infancy.

C. H. DAVIS, M.D.

GENITO-URINARY SURGERY

ADRENAL, KIDNEY, AND URETER

Eisendrath, D. N.: Double Kidney. *Ann. Surg.*, 1923, lxxvii, 450, 531.

The author defines the term "double kidney," gives a number of drawings of different reported cases of this anomaly, discusses its frequency and the morphology of the kidney and ureter, takes up some of the clinical aspects of this condition, and appends four tables showing the method of treatment and the results reached in the management of the eighty cases of this condition reported in the literature.

The more or less complete fusion in crossed ectopia is due to the displacement of one kidney during embryonic life rather than to a reduplication of the embryonic ureteral bud with the formation of a permanent kidney around the cranial end of each of two ureters arising from the same bud. The latter condition is better designated as a "reduplication of the ureters and renal pelves" or as a "double kidney." One half of a horseshoe kidney may be considerably higher than the other, and one half may lie much nearer the median line than the other, but the two never lie entirely on one side as in crossed ectopia. Cases of reduplication of the pelvis in horseshoe kidney have been described but these should be regarded as a combination of horseshoe and double kidney. In double kidney there may be a reduplication of the renal pelvis on one or both sides. As the reduplication of the ureters is subordinate to the reduplication of the renal pelvis, the term double kidney implies the presence of a double ureter. No case has been found by the author in which there were two ureters from a single renal pelvis.

The incidence of double kidney varies according to different authors from 1.2 per cent on the basis of 972 autopsies to 10 per cent as given by Weigert. It appears to Eisendrath, however, that from 3 to 4 per cent is a conservative estimate. At the Mayo Clinic, during a period of fifteen years, reduplication of the ureters and kidney pelvis was found to be unilateral in 94 per cent of the cases and bilateral in 6 per cent. Of 213 cases reported by Papin, 77 per cent were unilateral and 23 per cent bilateral, while of 276 cases reported by Mertz, 70 per cent were unilateral and 30 per cent bilateral. In a total of 619 reduplications of the ureter and renal pelvis the condition was found on one side in 80 per cent and on both sides in 20 per cent. Of the 502 cases (80 per cent) in which it was unilateral the reduplication was complete in 30 per cent and incomplete in 70 per cent. Of the 117 cases (20 per cent) in which it was found to be bilateral the reduplication was complete in 80 per cent and incomplete in 20 per cent.

There may be no sign of demarcation between the two halves of the kidney, either externally or internally. In some cases, however, the separation may be marked by a shallow groove externally and a more or less definite fibrous septum internally. In others, there may be a well-marked groove or furrow externally and a corresponding well-marked separation internally, while in others there may be complete separation of the two halves both externally and internally.

As a rule the upper portion of the double kidney forms about one-third and the lower portion the other two-thirds of the mass of the double kidney, and the pelvis of the upper portion is smaller than that of the lower and never as perfectly developed. As is frequent in all anomalies of the kidney, there is no true pelvis, the ureter arising directly as a result of the union of the primary calyces.

Double kidney may be associated with other anomalies. Several instances have been reported in which each half of a horseshoe kidney had two ureters and two renal pelves. The double kidney usually lies at a little lower level than the normal. If one-half of the kidney is hydronephrotic, the ureter from the other may be easily overlooked at operation. As a rule the ureter from the upper half of the double kidney crosses over toward, but not beyond, the midline and is inserted into the bladder both mesial and caudal to the insertion of the ureter from the lower half.

The most common ectopic terminations of the ureters are: (1) at the neck of the bladder, with the usual form of orifice; (2) in the prostatic urethra, with the usual form of orifice; (3) the ending of one ureter in a cystic dilatation on the surface with, in some cases, the presence of a small ureteral orifice; (4) the communication of both ureters in a cystic dilatation; (5) a blind ending of one ureter above or below; (6) the ending of one ureter in the seminal vesicle of the same side as that of the involved kidney; (7) endings, either blind or by open ureteral orifice, in the female urethra, the vagina, or the vestibule, usually the last named, below or lateral to the external urinary meatus.

There is no essential difference between the various pathologic conditions found in a double kidney and those of a single kidney, and there are no pathognomonic symptoms indicative of disease of one or both halves of a double kidney.

Of eighty cases collected from the literature, only 40 per cent were diagnosed prior to operation. In 60 per cent the diagnosis was made either at the time of operation or from examination of the specimen. Pyelography is of very great aid in the diagnosis. The diagnosis of surgical affections of the double kidney is dependent upon the following

data: (1) the presence of two ureteral orifices on one or both sides of the bladder; (2) the presence of an ectopic orifice or other form of ending of one or both ureters of the double kidney; (3) the alternate withdrawal on ureteral catheterization of clear and turbid urine from one kidney; (4) the findings of pyelo-ureterography.

The treatment of disease of the double kidney is the same as that of the same condition in the single kidney. If one-half of the kidney is diseased, heminephrectomy should be done if possible. However, as there may be a single artery and vein for both halves, an artery and vein for each half, or multiple arteries and veins for both halves, it is obvious that technical difficulties may render this operation impossible. C. D. HOLMES, M.D.

Keith, N. M., and Pulford, D. S., Jr.: Chloride Retention in Experimental Hydronephrosis. *J. Exper. Med.*, 1923, xxxvii, 175.

In animal experiments in which the ureter was obstructed by a band to produce a hydronephrosis the chemical examination of the blood showed that chlorides as well as water and urea are retained. If both the water and the chlorides are retained, there may be no appreciable rise in the chloride content of the plasma, but if chlorides are retained and water is not, the chloride content of the plasma rises strikingly.

After the removal of the ureteral obstruction in acute hydronephrosis all renal functions—water, urea, and chloride excretion—may be rapidly restored in equal degree or the chlorides may be retained temporarily while there is free excretion of water and urea.

In chronic hydronephrosis the adequate daily excretion of urea and chlorides may be kept up by a compensatory polyuria. If the polyuria fails, the percentages of these substances in the blood rise rapidly. V. D. LESPINASSE, M.D.

Hinman, F., and Belt, A. E.: Experimental Hydronephrosis: The Failure of Diuresis to Affect Its Rate of Development. *J. Urol.*, 1923, ix, 397.

Following double ligation and complete severance of the left ureter just above the bladder in white rats a uniform hydronephrosis was produced. Diuresis was then induced by water, salt, urea, diuretin, or digitalis given in maximum doses.

From these experiments the authors conclude that neither profuse polyuria nor marked oliguria has any influence whatever on the usual development of hydronephrosis in white rats after complete ureteral obstruction. O. E. NADEAU, M.D.

Guyot and Jeanneney: Partial Pyelonephritis in a Kidney with Two Ureters (Pylonéphrite partielle dans un rein à deux uretères). *J. d'urolog. méd. et chir.*, 1923, xiv, 37.

Double ureter is not very rare but the opportunity to follow the course of a partial pyelonephritis in a kidney with a double ureter is unusual.

The case reported by the authors was that of a woman 22 years old who developed a vesicovaginal fistula six years previously following the birth of a child. Two operations performed within six months failed to effect closure and the patient entered the hospital again for further treatment. On cystoscopic examination the urethra could not be found, but an opening the size of a dollar was discovered between the bladder and the vagina.

After preparation a urethra was formed over a sound by a plastic operation. By the end of the year (1919) the fistula was greatly reduced in size but an attempt to close it again failed. Thereafter the condition took on a new phase as bilateral ascending pyelonephritis developed. In an operation performed January, 1920, to bring the ureters out to a skin opening two ureters were found on the right side.

The effect of the operation was excellent. The fever fell, the appetite returned, and the patient gained weight. However, on January 25, 1921, the left kidney had become a sac of pus and nephrectomy was necessary. Improvement then again resulted, the blood nitrogen falling from 0.80 to 0.52. Subsequently the right kidney, the two ureters of which contained indwelling catheters, became the seat of pyelonephritis which necessitated pelvic lavage and intravenous injections of urotropin.

After three years the urine drained from the two ureteral openings by catheters and was collected in a receiver. Pyelography showed two pelves, one in the usual position, supero-internal, and the other infero-internal. A table is given showing the character of the urine from the normal and the infected pelvis. The secretory constants for the two ureters were 0.18 for the superior and 0.30 for the inferior. In a test for experimental polyuria the inferior ureter did not react but yielded 94 gm. of purulent urine while the other yielded 1,980 gm. of clear urine.

From an anatomical standpoint a double ureter probably means a double vascular supply as in solitary, ectopic, or horseshoe kidney. As the arterial supply is terminal, the kidney with a double ureter must be considered a double kidney (supplementary kidney).

In the surgical treatment a partial nephrectomy may be done. Legueu has performed five such operations. KELLOGG SPEED, M.D.

Wesson, M. B.: Pyelography: Common Diagnostic Errors. *California State J. M.*, 1923, xxi, 193.

This article calls attention to the ease with which mistakes can be made in the interpretation of renal roentgenograms and discusses how they may be avoided by complete systematic examinations. The literature is briefly reviewed and mention is made of the fact that little has been written with regard to atypical and borderline cases. Pyelographic technique is discussed and attention is drawn to the salient diagnostic features in cases of stone, stricture, hydronephrosis, renal mobility, tuberculosis, and tumors. The causes of untoward

reactions, such as too strong solutions and excessive pressure on injection, are listed. A series of forty-seven pyelographic pictures is reproduced and legends containing the essential features of the case records are appended. These illustrate possible diagnostic errors due to incomplete examinations and faulty technique and present a number of unusual or atypical findings. The bibliography is extensive.

JOHN G. CHEETHAM, M.D.

BLADDER, URETHRA, AND PENIS

Sacchi, G.: Cystadenoma of the Bladder (Cistadenoma della vesica). *Arch. ital. de chir.*, 1923, vii, 161.

Sacchi's case was that of a woman 50 years of age who entered the hospital on account of severe hæmaturia. Cystoscopic examination revealed a smooth, broad-based mass the size of a pigeon egg just beyond the left ureteral orifice. As electro-coagulation was impracticable, the bladder was opened by a suprapubic incision and the mass excised. The patient made a good recovery. Histologic examination showed that the growth was an adenoma undergoing cystic degeneration.

Vesical adenomata frequently undergo cystic degeneration because of occlusion of the glandular ducts by the accumulation of secretion which produces dilatation.

In the author's opinion the tumor in the case reported developed from some aberrant gland or an embryonic rest.

W. A. BRENNAN.

Kidd, F.: The Treatment of Epithelial Tumors of the Urinary Bladder Based on a Consideration of 162 Cases Personally Observed and Treated. *Lancet*, 1923, i, 523, 582, 636.

Malignant papillomata and some papilliferous carcinomata do not break through the muscular coat of the bladder until fairly late. As the muscular coat forms a barrier, the lesions tend to spread in the submucous coat. They also spread by local contact, implantation thus taking place on the opposite wall of the bladder. After they break through the muscular coat of the bladder, the majority, which lie just above the ureters, are held back for some time by the overgrowth of dense fibro-fatty tissue in the connective tissues surrounding the base and sides of the bladder and considerable overgrowth of the veins in this tissue. Less often these tumors lie on the trigone and break into the rectum. When they are high up on the superior or lateral walls of the bladder they may rupture into the peritoneum or metastasize to the peritoneum or liver. The usual metastasis, however, is from the pelvic cellular tissue to the sides and the posterior wall of the pelvis to the group of glands that lie at the bifurcation of the aorta. From here, metastasis may occur to the lumbar chain on either side, but this appears to be a late event except in cases of rapidly growing, excavating carcinoma of the bladder.

Bony metastasis is unusual. In cases of the common malignant papillomatous type of bladder

tumor in the region of one ureter the lymphatic spread of the cancer cells is slow. The common cause of death is not so much the invasion of distant parts as the local accidents of position, such as dilatation of the ureters and uræmia, infection cystitis and pyelitis, exhaustion from loss of blood, and spread of the condition to the rectum and peritoneum. Hence, if treatment is sought early enough, it may be possible to remove all the local growth and effect a cure. Of the author's series of cases less than a third were seen at a stage when radical treatment was possible. In cases of painless hæmaturia the only effective course is an immediate cystoscopic examination.

The old method of opening the bladder on its anterior wall and snipping away the growth is not radical enough. The bladder should be shelled out before it is opened and its blood supply controlled so that the entire tumor area can be removed from the outside in one piece, the excision being made wide of the growth. Nicolich of Trieste reported experimental work on dogs in which he found that the bladder will quickly re-form if all except the trigone is removed.

Of eighty of the author's patients who were seen early enough for diathermy or partial cystectomy, forty-one are known to be alive and well from seven to eleven years after the treatment.

Kidd classifies his cases into twelve groups and comments on them as follows:

Group 1, simple primary or small recurrent papillomata. This group included twenty-eight cases. Diathermy was applied through the operating cystoscope. The risk and inconvenience involved in removing portions of bladder tumors through the cystoscope for microscopic study seem to outweigh any advantage in the procedure. The degree of malignancy must be judged from the clinical findings if the best results are to be obtained. Some tumors which appear malignant react at once to diathermy, while others which appear benign prove refractory, eventually requiring open operation and proving to be malignant. The age of the patient is of relatively slight importance. The age of the patients whose cases are reviewed averaged 43 years, and the average number of treatments was less than three. All tumors appeared to be completely destroyed within a few months. Of twenty-one cases followed up to 1922, nineteen were without recurrence from four to nine years after the treatment. Diathermy seems less apt to be followed by recurrence than other treatment as the tumor is cooked *in situ* without handling. In two cases, however, a recurrence developed six years and two years respectively after the operation. These patients were then subjected to open operation and in 1922 were alive and well. There were no deaths in cases treated with diathermy. In one of two in which there was a rather severe hæmorrhage the clot was removed from the bladder with a lithotrite and Bigelow evacuator, and in the other by cystotomy. One case of cystitis was observed. Hexamethylenamine was used

throughout the treatment. The first treatment was given under general anaesthesia in order that the entire top of the tumor might be destroyed at one sitting. The debris was then washed away, the bladder refilled, and strong treatment given the pedicle. When this method is used, fewer treatments are required and the cure is quicker. An interval of from three to four weeks was allowed between treatments.

Group 2, inflammatory papilloma. In certain cases with chronic cystitis and pyelitis due to the colon bacillus, isolated, sessile buttons of hyperplastic inflammatory tissue covered with hyperplastic epithelium and closely simulating epithelial tumors are found around the ureters and on the trigone. This corrugated epithelial tissue is not so exuberant or so fimbriated as that of a papilloma. In the two cases of the series belonging to Group 2 these buttons were treated by diathermy in conjunction with the usual local treatment for the bacterial infection. Complete disappearance of the disease resulted.

Group 3, malignant papilloma or early carcinoma. In this group there were twenty-six cases. It is often very difficult to decide upon the best method of treatment. The patient may be of advanced age and without a history of previous hæmaturia and yet present a single large, somewhat bald papilloma with a broad and somewhat sessile base with very large veins running into it. Often diathermy will remove most of such a tumor, but sometimes it will fail. Of the twenty-six cases reviewed, twelve proved resistant to diathermy. Four patients were then subjected to partial cystectomy. Of these, two are alive after seven years and one remained well for three years and then died of recurrence. One died after partial cystectomy. Three were operated on by other surgeons and died from recurrence. Five others refused treatment and died within two years. Fourteen of the tumors were completely destroyed by the treatment. Nine patients have remained cured from six to seven years after the operation.

Group 4, partial or subtotal cystectomy. This group contained twenty-eight cases. By partial or subtotal cystectomy is meant an operation in which the bladder is freed from its bed before it is opened, the growth is removed from without with a large portion of the surrounding bladder wall which usually includes one ureter, and when the ureter is cut, it is implanted into the reconstructed bladder wall. Of the twenty-eight patients subjected to this operation, twenty-two were discharged healed within a period of from three weeks to three months. Secondary complications were rare. Eleven were known to be alive and well in 1922, from a little more than one year to eleven years after the operation. Eleven of the twenty-eight cases are known to have been cured, and it is probable that fifteen were cured in all. Six of the patients died within a month of the operation, one of pneumonia, two of heart failure, one of pyelitis and uræmia, one of an intra-

peritoneal operation, and one of shock due to rupture of the bladder stitches while a dresser was using too much force in irrigating the bladder.

The operation was performed extraperitoneally because it is done more easily in this manner and with less risk. Spinal anaesthesia was supplemented with ether anaesthesia. An incision was made from the symphysis down to the rectum and the affected portion of the bladder then removed by a clean-cut knife incision. If one ureter was involved in the growth, as was usually the case, it was cut off beyond the growth and re-implanted in the reconstructed bladder. One rubber drain was carried up from the ischio-rectal fossa to the site of the re-implanted ureter, and a Pezzer drainage tube inserted into the the upper anterior portion of the bladder. No irrigation of the bladder subsequent to the operation was done, but hexamethylenamine and boric acid were given by mouth. Perineal drainage was usually maintained for a week, and suprapubic drainage for about ten days.

Group 5, cystectomy with local removal from within the bladder. This group included seventeen cases of papilloma (simple and malign, single and multiple) which were treated by the old operation in which the anterior wall of the bladder was opened and the papillomata were dealt with entirely within the bladder by clamping their pedicles and stitching up the cuts, with or without diathermy, and the application of strong silver nitrate to the mucous membrane. Five of the cases are known to be cured, and possibly a cure was affected also in four others.

Group 6, total cystectomy. In this group there were five cases. Total cystectomy seems to be indicated when an early papilliferous or ulcerating carcinoma is seen growing from the base or trigone of the bladder and involves the mouths of both ureters; also in cases of multiple malignant polypi which recur in large numbers again and again and tend to fill the bladder. The cases reviewed were all of the first type. As a rule, dilatation of the ureters favors ascending infection of the lymphatics of their walls with consequent pyelitis and anuria. None of the patients lived for more than three weeks. Two died of shock, two of ascending pyelitis and anuria within a week, and one of intractable diarrhoea after three weeks. In three cases the ureters were stitched into the rectum. In four, autopsy showed that all traces of the carcinoma had been removed. In the fifth the tumor had spread to the peritoneum.

Group 7, ureterostomy. Of six patients subjected to diversion of the ureters, five died of ascending pyelitis within three weeks. In four, the ureters were anastomosed into the rectum, and in two were brought out on the skin of the loins. The ureters were dilated in every case. The operation relieved the strangury and anuria. In the case in which a successful result was obtained the ureters were implanted into the rectum. Four months after the operation the patient was comfortable and able to retain his urine for four hours without difficulty. He died five months later in coma.

Group 8, permanent drainage. There were eighteen cases of permanent cystostomy. In cases of severe strangury or constant clot retention this operation will give great relief and prolong life for from six months to a year or even longer. One case in this group was that of a boy 3 years of age who had complete retention due to an epithelial carcinoma which was undergoing cystic degeneration and filled the bladder. In such cases cystostomy has a lower mortality than ureterostomy and affords the opportunity of applying open diathermy or radium treatment.

Group 9, treatment not advised or refused. This group included twenty-four cases. In most of them the condition was inoperable, but the patient was comparatively comfortable.

Group 10, radium treatment. In this group there were five cases. In two, a very high dose of radium was left *in situ* for thirty-six hours. This stopped the hemorrhage permanently, but both patients died within four months. Radium was used also in two cases of carcinoma of the trigone between the ureters, and in a third with multiple recurrent papillomata filling the bladder after previous operations by other surgeons. In one case the surface of the ulcer became healed, bleeding ceased, and the cystitis was cured, but traces of the growth remained underneath. One other patient still has hæmaturia, but her pain is less. Radium treatment should be reserved for cases of early malignancy between the ureters and cases of multiple recurrent papillomata which fill the bladder.

Group 11, incorrect diagnosis. An incorrect diagnosis was made in two cases. In one, in which a stone in the prolapsed ureter simulated a bald papilloma or sessile enlargement of a prostatic lobe, exploration was done with removal of the stone. In the other the condition was diagnosed as a large sessile carcinoma of the base of the bladder between the ureters but nothing was done and the patient was perfectly well four years later. Bladder lesions which may be confused with tumor are acute inflammatory oedema of the mouth of a tuberculous ureter, similar oedema caused by the colon bacillus, a stone impacted in the lower end of a ureter, and inflammatory papilloma.

Group 12, true epithelial papilloma of the male urethra. In this group there was one case. The patient had been treated for two years for gonorrhœa although the discharge was blood rather than pus. On urethoscopic examination six long-pediced papillomata were found hanging from the roof of the urethra from 3 to 4 in. from the meatus. Diathermy was used after the penile urethra had been slit down to its floor. On section, the tumors exactly resembled simple papillomata of the bladder. The urethra healed by primary intention.

On the basis of this series of cases the author draws the following conclusions:

1. In cases of papilloma of the bladder of a benign type, diathermy applied through the cystoscope will effect a cure in at least 90 per cent of the cases

and is without the risk of opening the bladder. To open the bladder and snip out such tumors should therefore be considered unnecessary interference associated with definite risk to life.

2. Diathermy applied through the cystoscope will give a cure also in a certain number of cases of doubtful malignancy. If it fails to exert an adequate destructive action after three treatments at the most, subtotal cystectomy should be done.

3. In the treatment of malignant papilloma, early papilliferous carcinoma, and even very early ulcerating carcinoma of the bladder, subtotal or partial cystectomy should render the old intravesical operation obsolete except in a few isolated cases. It is an operation of considerable technical difficulty and presents a definite risk to life, but when successful gives a higher percentage of permanent cures than the older type of operation. All cases of partial cystectomy should be followed up at regular intervals by cystoscopic examination.

4. Total cystectomy has been rendered almost obsolete by partial cystectomy, diathermy, and radium treatment. It should be reserved for cases of multiple malignant papillomata which resist other treatment, and for a few favorable cases of early carcinoma involving both ureteral openings.

5. Ureterostomy presents almost as great risk to life as total cystectomy. When successful, it gives great relief and in a few favorable cases it may be used as a preliminary to total cystectomy.

6. Radium cannot yet be substituted for surgery, though it has perhaps replaced total cystectomy.

7. The tumors considered in this article should be classified from a clinical standpoint as simple and malignant pedunculated tumors and papilliferous and ulcerous sessile tumors. C. D. HOLMES, M.D.

Neill, W., Jr.: The Treatment of Carcinoma of the Bladder. *South. M. J.*, 1923, xvi, 292.

The author discusses the etiology of carcinoma of the bladder, gives a history of its early rational treatment, outlines his method of treatment, and reports the results obtained in a series of 142 cases treated at the Howard A. Kelly Hospital, Baltimore, from 1910 to 1922.

Bladder tumor is the most common cause of blood in the urine. It may occur at any period of life, but is most frequent after middle age. Its course is prolonged. Usually it tends to remain limited to the bladder but in some cases metastases to the pelvic bones occur early.

Warner in 1747 operated for bladder tumor through a lateral perineal incision. In 1875 Simon removed growths from the female bladder through his urethral specula, and in 1814 Billroth first operated successfully upon a bladder tumor from above. Later the suprapubic route for operation was made popular by Guyon. Operation through the vagina was done thirty years ago. In 1905 Watson advocated the complete removal of the bladder in all cases of cancer in which the disease was limited to the bladder itself.

The etiology of this condition is uncertain, like that of new growths elsewhere. Some writers contend that in a large percentage of cases there is a history of chronic cystitis or other irritation, but the author has observed this in a comparatively small number.

The results of all incisional forms of treating carcinoma of the bladder have been discouraging, and those obtained by the radical removal of the tumors and by cystectomy with transplantation of the ureters have not been brilliant. Before any form of treatment is instituted a test of the kidney function should be made as the cause of death is usually uræmia with infection of the entire urinary tract rather than the disease itself. Cystoscopy should be done for the same reason. The author recommends the use of the open-air cystoscopic technique of Kelly. Because of failure to make a cystoscopic examination in all cases of hæmaturia an easily removable papilloma may be allowed to pass over into a condition of hopeless malignancy.

All bladder growths are potentially malignant. Pedunculated tumors with no induration of the mucosa respond well to fulguration, but all other types seem to be made worse by this treatment. A review of the literature shows the general consensus of opinion as to treatment to be as follows:

1. For all superficial or pedunculated benign papillomata, direct intravesical fulguration or removal by means of the cautery gives by far the best results.
2. For infiltrating, definitely malignant tumors, the only treatment followed by satisfactory results is radical removal of the area of the bladder wall involved.
3. When the growth involves both ureters, Watson's operation of total cystectomy with a primary operation for transplantation of the ureters gives the best results.
4. Cystotomy, excision of the growth, and treatment of the base with the actual cautery should be used only in hopeless cases as a palliative measure to relieve pain and hæmorrhage.

Since 1910 radium has occupied a prominent place in the armamentarium of many large clinics. Of the 142 persons with carcinoma of the bladder who were treated at the Howard A. Kelly Hospital from October, 1910, to May, 1922, fifty-five were males and eighty-two were females. The youngest was 26 years old and the oldest 86 years. In fifty-one cases there was no other symptom than blood in the urine; the longest duration of this symptom was six years and the shortest two months. In every case hæmaturia was a prominent symptom and made its appearance early. Seventeen patients gave a history of chronic cystitis persisting from two to twenty years. In eighty-nine cases palliation was obtained for a short time only or there was no improvement of the condition. In fifty-three cases there was definite improvement with relief of symptoms for a long time or a cure over a period of three years with no recurrences.

The author has employed three different types of radium treatment, used either alone or in combination: (1) direct, intravesical, or surface radiation; (2) implantation, or the insertion into the growth of tiny glass capillary points containing radium emanations; and (3) massive radiation at a distance from the exterior, by way of sacral, perineal, suprapubic, and vaginal portals. Intravesical treatment is carried out on all growths confined to and around the neck of the bladder: papillomata, papillary carcinomata, and infiltrating carcinomata. Patients with growths other than these and without evident metastases are subjected to suprapubic section. The intravesical treatment is given through the Kelly open-air cystoscope, the radium being encased in a brass capsule attached to the end of a straight sound and held against the tumor under direct vision. The maximum dose for each square centimeter of disease is 100 mgm.-hrs. of radiation. This is not repeated under a period of six weeks. If the tumor is a definitely infiltrating sessile carcinoma, it may then be treated by implanting into it small glass emanation points.

The suprapubic or incisional type of treatment is carried out in cases without evident metastasis, cases of extensive infiltration of the bladder wall, large and multiple tumors, and cases in which there is some doubt as to the exact extent of the bladder involvement. If the tumor is large and definitely protruding, it is removed with the cautery and its base is cauterized to check bleeding. All of the areas of the tumor are implanted, the average total dose to each cubic centimeter of the growth being 9.5 mc. Suprapubic intravesical surface radiation is accomplished by means of multiple radium capsules screened with 1 mm. of brass and 1 mm. of rubber. The tubes are placed side by side and the number used depends on the size of the tumor. Care is taken to overlap the edges of the neoplasm by 1 cm.

C. D. HOLMES, M.D.

Crosbie, P. D.: Complications Occurring in Gonorrhœal Urethritis. *Boston M. & S. J.*, 1923, clxxxviii 435.

The complications of a simple gonorrhœa of the anterior urethra are few and of slight importance while those of infection of the posterior urethra are widespread and very serious. The gonococci tend to progress along the canal, infecting the glands of the mucosa along the way and in a large number of cases reaching the deeper glandular structures, the prostate and vesicles. It is only by the greatest care that this posterior involvement can be prevented, but the author believes the commonly given incidence of 90 per cent is too high, 30 per cent being more nearly correct. When once the prostate and seminal vesicles have become involved a number of grave complications may be produced by way of the blood stream or by direct extension of the condition to the bladder and kidneys or through the vas to the epididymis. The frequency with which ureteral strictures are found on passage of the catheter suggests that in-

vovement of the ureters and kidneys is more common than is generally believed.

The common complications of œdema of the glans and the foreskin and a bloody discharge are usually cleared up easily by stopping treatment and having the patient soak the penis in hot water several times a day. Abscess of the glands of the fossa navicularis usually ruptures into the urethra itself; if it does not or points externally, artificial drainage should be established from within the urethra in order to prevent the development of a urethral fistula.

In the prostate the immediate trouble is usually not very severe. There is usually only increased frequency with tenesmus, but in a few cases the symptoms are very marked, with fever and prostration. In a few cases an abscess appears which may demand surgical interference, but as a rule this ruptures into the urethra or the rectum. Abscesses may be drained through either the perineum or the rectum. The treatment of gonorrhœal inflammations of the prostate and vesicles depends on the severity of the symptoms. Until the acute stage is passed, no irrigations should be given; light massage of the prostate and vesicles, provided they are not too sensitive, and the forcing of fluid usually suffice. The patient should be kept as quiet as possible and on a light diet. The severe cases should be treated in a hospital with rest in bed, copious hot rectal irrigations, catharsis, and light massage every other day if the patient can stand it. If there is retention, catheterization should be done as often as comfort demands. Hot sitz baths are beneficial. As soon as the patient can stand it, anterior and posterior injections of hot 1:5,000 potassium permanganate solution should be given every other day and followed by light massage.

The next complication to be considered is involvement of the epididymis through extension of the infection along the vas. This may occur in the acute stage of the gonorrhœa or at any time later after the gonococci have died out and may be caused by other bacteria following in their wake. It is usually precipitated by excesses of one sort or another. As a rule it will subside with rest and the application of ice packs to the scrotum, but as it tends to recur, the epididymis should be drained. The testicle is much more apt to functionate if the epididymis is drained than if the abscesses are left to resolve with the formation of cicatricial tissue.

In acute posterior urethritis there is a certain degree of trigonitis but no permanent damage to the bladder.

The treatment of stricture of the ureter is the passage of bougies through the cystoscope for dilatation. Pyelonephritis of gonorrhœal origin occurs probably more often than is generally believed and tends to become cured spontaneously, provided there is no obstruction to the outflow of urine and there has been no previous kidney disease.

Urethral strictures usually follow severe types of infection but may occur in very mild cases as well. If a filiform bougie can be passed it is very much

better to dilate gradually than to do an external urethrotomy as there will be less scar formation. If there is a peri-urethritis or pericystitis, incision and free drainage are indicated.

Of the blood-borne complications the most serious as well as the most rare is gonorrhœal endocarditis which is usually fatal. Thayer reports its incidence as 11.3 per cent.

Gonorrhœal arthritis may be caused by the gonococcus itself in the joint or by the toxins produced by this organism; it tends to be monarticular and has a predilection for large joints such as the knee, elbow, ankle, and wrist. The treatment is the same as that of arthritis due to any other cause. The author does not approve of the use of vaccines.

In chronic posterior urethritis there is infiltration of the submucosa with round cells which changes the elastic tube into a tube that is narrowed and resistant to dilatation. The treatment indicated is a continued course of gradual dilatations each followed by the application of a 1:4,000 solution of silver nitrate and massage of the prostate and vesicles.

C. D. HOLMES, M.D.

GENITAL ORGANS

Lisser, H.: The Absence of the Prostate Associated with Endocrine Disease, Notably Hypopituitarism; with the Histories of Eighteen Cases.
Endocrinology, 1923, vii, 225.

The author discusses the status of the prostate as a gland of internal secretion; the influence of the testicle on the prostate; the influence of the pineal and suprarenal glands upon the prostate; the influence of the pituitary upon the genitalia and the secondary sex characters; and the prostate in clinical hypopituitarism.

He reports in detail eight cases of pre-adolescent hypopituitarism of the Levi-Lorain type of infantilism. In six, the prostate was absent, and in two, very small. He reports also five cases of pre-adolescent hypopituitarism of the Froelich type. In four, the prostate was absent, and in one, small. Other cases reported are two of dyspituitarism gigantism and infantilism, Neurath-Cushing type, and three cases of eunuchoidism.

The points brought out in the discussion are as follows:

1. The prostate does not develop if castration is performed early in life.
2. Though normally developed, the prostate will atrophy and eventually disappear if castration is performed in the adult.
3. Castration has no effect on the hypertrophied prostate.
4. In hypogonadism or eunuchoidism the prostate atrophies.
5. Goetsch showed that feeding the anterior lobe of the pituitary to young rats hastens the development of the prostate.
6. Many investigations have shown that experimental hypopituitarism is followed by sex in-

fantilism, including retarded development of the prostate.

7. In clinical hypopituitarism in the male the prostate fails to develop if the disease begins before puberty, and atrophies if it has its onset after puberty.

GILBERT J. THOMAS, M.D.

Duettmann, G.: Renal Insufficiency in Prostatic Hypertrophy (Die Niereninsuffizienz bei Prostatahypertrophie). *Beitr. z. klin. Chir.*, 1923, cxxviii, 79.

Duettmann examined eleven cases of prostatic hypertrophy with regard to kidney function, determining the quantity of urine excreted, the concentration power of the kidney, and the retention of nitrogen in the blood.

In four cases there were signs of kidney insufficiency. These are divided into two groups: (1) functional disturbances, and (2) organic renal insufficiency. Functional disturbances are characterized chiefly by poor renal concentration power. This leads to retention of salt with polyuria and polydipsia, while the excretion of nitrogen is relatively good. It is due to a pressure injury of the tubular epithelium. In such cases a two-stage operation is indicated because, as rapid restoration of the kidney follows the formation of a bladder fistula, the prostatectomy can be performed later without danger. In organic insufficiency, in which there is always retention of nitrogen in the blood, only the formation of a bladder fistula should be done. KOENIG (Z).

Papin and Verliac: The Treatment of Carcinoma of the Prostate with Radium (Suite de la discussion sur le traitement du cancer de la prostate par les applications de radium). *J. d'uro., méd. et chir.*, 1923, xv, 115.

Papin reports eleven cases he treated with radium. In only one case was a large tube of radium implanted in the prostatic bed after prostatectomy. This patient died. In the other cases radium needles were used. After trying different methods Papin has adopted the following technique:

A suprapubic opening is made and the iliac and hypogastric regions are palpated for enlarged glands. If these are found, only a cystotomy is done. After closure of the peritoneum, the bladder is opened and the peri-cervical region is palpated to determine how far the neoplasm has developed laterally. The usual cystotomy follows. If the case is considered one in which the application of radium will be beneficial, a second operation is done ten days later. Through a perineal incision the needles are placed so that they will irradiate the cancerous mass in the prostate and vesicles. A finger is inserted in the bladder opening to serve as a guide.

In two cases death resulted early from rapid necrosis of tissue. In three, there has been such marked improvement that a permanent cure is possible. In each of these cases the prostate has shrunk to normal size.

Papin believes that the cases favorable for the application of radium are also those in which surgical

treatment is applicable, but that a successful result may be obtained with radium in cases in which the operative risk is high. He is not sure, however, that the improvement so far noted is not merely an arrest of the carcinomatous process by the sclerosis following the use of radium.

Verliac reports the findings at autopsy in four cases of prostatic or vesico-prostatic cancer, three in the early stages and one in the late stages. In three of the cases death occurred twelve, twenty, and twenty-three days after operation respectively. The operation consisted in inserting radium tubes into the prostate through the perineum and leaving it in place for forty-eight hours. In one case, in which diarrhoea occurred, congestion of the mucosa of the large intestine without ulceration was found at autopsy. In the two others, in which there were symptoms suggesting peritonitis, marked distention of the large bowel without peritonitis or mechanical obstruction was found. In Verliac's opinion, radium used for the treatment of carcinoma of the prostate may have a dynamic or irritative action on the large intestine, particularly the rectum.

Verliac's fourth case was that of a man 60 years of age. Two tubes of radium sulphate, 6 cg. each, were inserted into the right lobe of the prostate for forty-eight hours. Death resulted thirteen months later. At autopsy the right lobe of the prostate was found to contain an area of necrosis surrounded by fibrous thickening which probably represented the destroyed carcinoma. Outside the fibrous zone the prostatic tissue showed fully active and recent cancerous areas.

KELLOGG SPEED, M.D.

Winckler, V.: The Development of Non-Gonorrhoeal Epididymitis (Zur Entstehung der Epididymitis non-gonorrhoeica). *Zentralbl. f. Chir.*, 1923, l, 89.

The author reports the development of bilateral suppurative inflammation of the epididymis in a case in which a perineal fistula formed as the result of a very obstinate stricture of the urethra. Following ligation of both vasa deferentia to prevent an ascending infection, fistulae formed at the sites of the ligation and drained urine in a thin stream when the patient strained. This forcing of the urine through the vasa deferentia was undoubtedly the cause of the suppurative epididymitis. Therefore whenever epididymitis develops in a case of disease of the urinary tract in which straining is necessary to empty the bladder (prostatic hypertrophy, stricture) the possibility of urinary infiltration as the cause should be borne in mind. VOLLHARDT (Z).

Lipschuetz, A.: New Experimental Data on the Question of the Seat of the Endocrine Function of the Testicle. *Endocrinology*, 1923, vii, 1.

Tandler and Grosz, Steinach, Sand, and Lipschuetz have supported the theory of Bouin and Ancel that the endocrine function of the testicle in mammals is mediated by the interstitial cells. Without adding new data, Kohn, Benda, and Stieve have attacked this theory, claiming that only the genera-

tive part of the testicle has an endocrine function. Lipschuetz reports the following experiments in support of the work of Bouin and Ancel.

To determine whether a normal internal secretion of the testicle is possible without full development of the interstitial cells, one testicle and half of the other were removed from a month-old rabbit. At the end of eight months the penis was infantile. The eunuchoidism was probably due to the underdevelopment of the fragment. Microscopic examination showed spermatogonia surrounded by cells of Sertoli. The intertubular tissue was chiefly connective tissue. The interstitial cells were apparently infantile.

That incomplete spermatogenesis was not the cause of the eunuchoidism is demonstrated by the following observations:

Unilateral castration was done on two of three rabbits six weeks old. In one, the penis remained infantile at the age of six and a half months and the testicle was twice the size of those of the control. The epididymis was full of spermatozoa, and the tubules were in full spermatogenesis. The interstitial cells were underdeveloped.

To determine whether spermatozoa are necessary for the internal secretion, the left testicle of a two-months-old rabbit was incised, the incision including the ductus epididymidis on the right side. The animal remained eunuchoid until the seventh month. In the eighth month the penis had assumed the size of the control. Examination of the left testicle showed that the tubules were enlarged and had evidently entered into spermatogenesis. Many layers of cells had desquamated. The interstitial cells were well developed, and several mitoses were found. The findings in the right testicle were similar. Spermatozoa were not developed.

To determine whether full hormonal activity of the testes is possible in the absence of all stages of spermatogenesis the left testicle and all but a small part of the upper pole of the right testicle of a ten-day-old guinea pig were removed. At the end of four months, the animal, which was fully developed, was killed. The seminal vesicles were found normal. All of the tubules were degenerated, with only one layer of cells, probably cells of Sertoli. Apparently there was some spermatogonia. This observation seems to prove that full hormonal activity is possible in the absence of all of the stages of spermatogenesis.

It is possible that after the seminal tubules had remained in an undeveloped stage for a certain time, signs of castration would have appeared, but in an animal treated in the same way no somatic signs of castration were observed in a period of eleven months. There is no proof of a temporary regeneration of generative tissue to explain the maintenance of sex characteristics.

Another possibility is that the testicle may be able to perform its normal hormonal function without the different stages of spermatogenesis but that spermatogenesis is necessary for the development of the interstitial cells. In one experiment there

were infantile tubules and infantile interstitial cells with eunuchoidism, while in another the tubules had regressed to an infantile stage but there were adult interstitial cells and sexual maturity. However, it is possible that beginning spermatogenesis, if not a complete cycle, is necessary for the development of active interstitial cells.

To determine whether the testicular hormonal activity may be absent when the interstitial cells are present in large numbers, as claimed by Bell, Benda, Durck, Belblinger, and Steine, incisions were made through the testis and ductus epididymidis on both sides of an animal two months old. The animal remained eunuchoid for six months. Spermatogenesis ceased. The interstitial cells were numerous and extraordinarily large. The protoplasm was packed full of fat droplets. The nuclei were apparently normal. The questions as to whether the interstitial cells were truly normal and whether the eunuchoidism was due to their abnormality or the cessation of spermatogenesis require more experimental work for answer.

Strieve claims that following unilateral castration the hypertrophy of the remaining testicle is proof of the endocrine function of the generative part. A large number of experiments have demonstrated that there is no hypertrophy when all but a small fragment of testicle is removed. This small fragment can compensate for two normal testicles. Evidently some other factor causes the increase in weight of the remaining testicle following unilateral castration. The cause of hypertrophy of the interstitial cells seems to be some local factor.

Bresca demonstrated by means of castration that the nuptial feature of the male triton is under the control of the testicle. This was confirmed by Aron. Stieve insisted that so long as no interstitial cells are found in the triton the hormonal function of the testis in mammals cannot be performed by interstitial cells. Aron localized a special structure above the hilus of the testicle which he destroyed with the galvanocautery at the time of heat. This had the same effect as castration. Examination showed that the generative part of the testicle was not disturbed. Following a detailed study of this structure Champy stated that these cells arise from the cells of Sertoli.

Normal endocrine function of the testicle is not possible without interference by other glands with an internal secretion. Bell has called attention to the relationship between the sexual and the other endocrine glands. From the experiments of Steinach and of Sand on heterosexual transplantation of the ovary and testicle it seems probable that the influences of the other endocrine glands on sex characters go through the sexual gland as a medium.

In conclusion the author emphasizes that the various experiments performed have proved that the normal hormonal activity of the testicle of mammals is impossible in the absence of fully developed interstitial cells. A testicle with spermatozoa with undeveloped interstitial cells cannot

perform its normal endocrine function. Normal endocrine function is possible when only the cells of Sertoli and spermatogonia are present in the tubules. The sex characters can be normally developed when only a 1 per cent fragment of testicle is present. Possibly the interstitial cells receive some impulse from the developing generative cells in intra-uterine life.

C. D. PICKRELL, M.D.

MISCELLANEOUS

Dillon, J. R.: Pre-Cancerous and Early Cancerous Lesions of the Genito-Urinary Tract. *California State J. M.*, 1923, xxi, 148.

Before the cancer problem can be solved the laity must be educated to appreciate the significance of the earliest symptoms and the importance of an early diagnosis in order that the complete removal of the growth will be possible.

In the case of a man past 50 years of age who complains of dysuria or pain in the perineum or rectum, malignancy should be suspected if on rectal palpation a firm nodule is found in either lobe of the prostate or one or both lobes are thickened and infiltrated around the seminal vesicles.

Hæmaturia without apparent cause, coming with a sudden onset and often ceasing abruptly, is an indication for an immediate investigation, preferably during the stage of gross bleeding when it can be determined whether the blood comes from the bladder or kidneys.

Malignancy is suggested by thickening or necrosis of the papillæ, œdema at the base of the tumor, nodules in the mucosa near the tumor, or induration felt on rectal or vaginal palpation.

Malignancy of the kidneys and ureters causes no early symptoms, and even death may result without any clinical evidence of renal involvement. So long as surgery remains the only method which offers a chance of cure, the results of treatment will depend more upon an accurate diagnosis before metastasis has taken place than upon any particular radical technique.

Dillon concludes his article as follows:

1. The diagnosis of beginning malignancy depends upon the patient's early appearance, the recognition by the physician in general practice of clinical findings indicating a urological examination other than those definitely arising in the genito-urinary tract, viz.: (1) a history of hæmaturia or pyuria, though the urinalysis at the time is negative; (2) pus or blood in the urine, though there are no clinical symptoms suggesting involvement of the urinary tract; (3) a tumor in the upper lateral part of the abdomen or the suprapubic area; (4) X-ray shadows suggesting the location of a lesion in the urinary tract; and (5) a history of indefinite abdominal pain.

2. It must be expected that a large number of the diagnostic tests will be negative, but negative urological data are often fully as valuable as positive data.

3. The long duration of symptoms before the patient is completely examined is the greatest stumbling block to an early diagnosis of beginning malignancy. Knowledge of the importance of analyzing early signs and symptoms must be spread, not only among the laity, but also among general practitioners, if the results of treatment are to be improved.

LOUIS GROSS, M.D.

SURGERY OF THE BONES, JOINTS, MUSCLES, TENDONS

CONDITIONS OF THE BONES, JOINTS, MUSCLES, TENDONS, ETC.

Edington, G. H.: Spongy Exostosis of the Long Bones. *Glasgow M. J.*, 1923, n.s. xvii, 273.

Spongy exostoses usually arise at or near one extremity of the diaphysis in close proximity to the epiphysis. Sometimes, however, they occur at a distance from the bone extremity. They are more common in the femur and tibia than other long bones and where bony growth is most extensive and prolonged.

Exostoses are composed partly of cartilage. They are variously named chondro-osteomata, ossifying chondromata, and cartilaginous exostoses. Usually the cartilage forms a cap over the cancellous bony core. It may be lobulated and form distinct processes. It is thickest over the free extremity of the outgrowth. There is little tendency for a recurrence where the bony core is in continuity with the cancellous tissue of the diaphysis.

Bursæ present over the cartilagenous cap may become inflamed and suppurate.

Exostoses may be of the spinous form, almost sessile with a slightly constricted, short, broad neck, or pedunculated. They tend to assume an oblique position. The pedunculated exostoses may break off.

Interference with normal bone growth occurred in only one of the series of cases reported by the author. This was a case of exostosis of the lower end of the radius with stunting of the radius and curvature of the ulna. In cases of multiple exostoses such interference with normal growth is not infrequent.

Exostoses seem to arise from a sequestered portion of the epiphyseal cartilaginous plate. Ossification and continuation of growth correspond closely with that of the parent bone. Clutton states that exostoses sometimes begin after general bone growth has ceased.

In some cases rickets may be present but the author believes this is a complication.

Deformity may be the first sign of an exostosis. It may be due to swelling or secondary curvature of the bones. In some cases injury may first call attention to the exostosis. Suppurative bursitis may be a prominent feature. The growth may be discovered accidentally.

In cases of simple exostosis the treatment consists in removal of the growth. In cases of multiple exostoses the removal of those that cause pain or discomfort should be undertaken.

The ten cases reported by the author were as follows: an osteochondroma of the sternal end of the clavicle, an exostosis of the lower end of the radius, a

spongy exostosis of the first metacarpal bone, a nodulated exostosis of the posterior end of the iliac crest, an exostosis of the outer side of the lower third of the femur with fracture of the pedicle, an outgrowth from the region of the adductor tubercle, a spongy exostosis of the upper end of the tibia within the capsule, a spongy exostosis of the upper end of the tibia due to injury, a spongy exostosis at the lower end of the tibia with deformity, and multiple exostoses.

JOHN MITCHELL, M.D.

Koslowski, A. A.: The Morphology of the Blood in Pneumococcus Infections of Bones and Joints (*Die Morphologie des Blutes bei Pneumokokkenaffektion der Knochen und Gelenke*). *Verhandl. d. Russ. Chir. Pirogoff-Ges.*, Petrograd, 1922.

For years the author had made systematic blood examinations in cases of surgical disease because the variations of leucocytosis and neutrophilia constitute an important criterion of the reaction of the body to pyogenic infection. By comparing the clinical picture with the blood count—the increase in the leucocytes indicating the organic resistance, and the percentage of polynuclears indicating the intoxication of the blood—he classifies cases into the following three groups:

1. Pyæmic: leucocytosis of varying degree; neutrophiles less than 85 per cent.
2. Septic: leucopænia; neutrophiles more than 85 per cent.
3. Septico-pyæmic: high leucocytosis; neutrophiles more than 85 per cent.

The osteo-arthritis pneumococcus infections are more frequent than is generally supposed. From a careful study of seven acute and thirteen chronic cases in an orthopedic clinic the author came to the conclusion that after the subsidence of the initial symptoms as well as after subsequent fistula formation, the condition is often confused with tuberculosis. When the foci are closed, puncture often reveals no pus, the exudate is scant and rich in fibrin and, as it is difficult to aspirate, the bacteriological examination is often not made. Bacteriological examination will always show characteristic gram-positive diplococci. However, cultures frequently fail even when special media are used, as in chronic cases the bacteria are usually intracellular or are contaminated with staphylococci.

The following X-ray findings speak against tuberculosis: narrow, sharp erosions in the epiphyses, a marked periostitic coat around the diaphyses, and generalized areas of slight destruction. In acute cases in which these diagnostic signs are still absent the blood examination is of particular value in the differential diagnosis and prognosis. The blood picture is that of pyæmia and indicates a tendency

on the part of the osteo-arthritis pneumococcus infection to form metastases. The lymphocytosis characteristic of tuberculosis is absent. The virulence is usually not high, the leucocytosis is moderate, the increase in polynuclears is slight, and the neutrophilia distinct. In severe cases the two blood curves diverge: the leucocytosis remains low and the neutrophilia rises, the blood picture becoming septic. This is true also in cases not properly treated.

The treatment should be expectant. Operation should be delayed if possible for two weeks after the beginning of the disease, and should consist of a puncture or a stab incision followed by the injection of iodine-iodoform-glycerine. The effect of the emulsion is to a certain extent specific.

VON DER OSTEN-SACKEN (Z).

Bloodgood, J. C.: Bone Tumors: Sarcoma, Periosteal Group. Ossifying Type—Benign Ossifying Periostitis and Myositis. *J. Radiol.*, 1923, iv, 119.

Confusion of terms arises in designating types of sarcomata. The author suggests the term "ossifying" to describe the type in which bone formation predominates. Benign ossifying periostitis and benign ossifying myositis are known.

There is also an ossifying sarcoma. Since this has always been periosteal, the author suggests calling it "ossifying sarcoma."

In one group of bone lesions there remains an intact bone shell covered with normal periosteum. Exploration reveals uninfiltreated normal soft parts and an unthickened periosteum. The periosteum strips back from a normal, white, opaque bone. Stripping back the periosteum reveals minute drops of blood from the haversian canals. The first change from the normal is absence of blood and a dark appearance of the bone.

The shell of bone may be as thin as parchment but feels like normal bone. It may be slightly rough, or may crepitate.

Tuberculosis may appear as a central bone lesion with an intact bone shell. Syphilis and pyogenic osteomyelitis have never been noted as central lesions with an intact bony shell and without an ossifying periostitis. In multiple myeloma and metastatic carcinoma especially from hypernephroma, there may be a central bone lesion with an intact bone shell and without ossifying periostitis.

Fractures may occur in all types of central bone lesions. Ossification never takes place in the central lesion except in the bone cyst or osteitis fibrosa.

The author classifies sarcomata as follows:

A. Ossifying type (excessive periosteal bone formation): (1) the shaft beneath the bone formation appears normal, (2) the shaft beneath shows osteoporosis or destruction.

Cases of Type A2 are the more common. The diagnosis of sarcoma can usually be made from the X-ray picture alone, but sometimes chronic osteomyelitis, syphilis, traumatic periosteitis, myositis,

and exostosis cannot be differentiated from this type.

B. Sclerosing type: (1) little or no periosteal bone formation, (2) considerable bone formation, (3) excessive periosteal bone formation.

C. Osteoporosis. Destructive type. In the early stages this may resemble osteoporosis from non-use.

D. Definite palpable periosteal tumors in which the X-ray shows no bone formation.

On palpation, excessive ossifying periosteal sarcomata may suggest benign exostosis or ossifying periostitis.

JOHN MITCHELL, M.D.

Hallbeck, A. C.: Fibrous Ankylosis, Its Prevention and Remedy. *Med. Times*, 1923, li, 148.

The author stresses the importance of early massage and passive motion after fractures, epiphyseal separations, dislocations, sprains, and other injuries. It hastens the removal of extravasated blood, causes gradual recession of the oedema, prevents stiffness, helps to check muscle waste, prevents adhesions, and hastens union. However, in fractures of the patella, the head or neck of the femur or humerus, and the olecranon process, and in complete fractures of the epiphyseal part of long bones in general, it cannot very well be given.

Of a total of 4,286 cases of fibrous ankylosis treated by the author at St. Luke's Hospital and the Hospital for Ruptured and Crippled in New York, 1,831 were discharged as cured and 2,041 as improved. In 414 there was no improvement. The fibrous ankylosis was due to fractures and other injuries and arthritis. DANIEL H. LEVINTHAL, M.D.

Funsten, R. V.: A Clinical Study of Thirty Cases of Muscular Dystrophy. *J. Bone & Joint Surg.*, 1923, v, 190.

The author studied his thirty cases of muscular dystrophy from the clinical, metabolic, myotonic, and ergographic standpoints. He gives Erb's classification of the various types. The entire subject is discussed very thoroughly. This article is complementary to the article of Funsten's colleagues, Gibson, Martin, and Buell which appeared in the *Archives of Internal Medicine* in 1921.

Funsten states that in neither the juvenile nor the infantile forms is the reaction of degeneration present, nor are there any fibrillary twitchings. He quotes Gower's conclusions as follows:

1. The disease is almost never known to be transmitted through the father.
2. The date of onset is important; the younger the age of onset, the poorer the prognosis.
3. Pes equinus is the most constant contracture.
4. The ability to stand is usually lost between the tenth and twelfth years of age and death occurs between the fourteenth and eighteenth years.

Funsten states that the hypertrophic and atrophic types in the infantile variety should not be strictly differentiated as it appears that one may often follow the other in the ordinary course of the disease. Of the series of cases studied twenty-five were those of

males and five those of females. The average age was 13.5 years. The oldest patient was 38 years, and the youngest 2 years. The average age of onset was 5 years; the oldest, 21 years; and the youngest a few weeks. Twelve cases were treated for from two weeks to three months with various glandular extracts (pituitary, adrenal, parathyroid, and pineal) without any appreciable effect. Seven cases were treated with calcium lactate, and eleven with massage and exercise (either with or without glandular treatment). The author believes that calcium lactate is of some benefit.

Twelve of his cases were slowly progressive, eight moderately progressive, and nine rapidly progressive. Wassermann tests made in fourteen cases were negative. The microscopic blood picture was normal in six cases examined. In all cases the reflexes, with the exception of the cremasteric and abdominal reflexes, were either absent or greatly diminished. Microscopic examination of muscle, made in four cases, showed the fibers to be pale and with diffuse areas of granular degeneration and vacuolization. There were also areas of fat infiltration between the fibers. The striations were present except in a few areas where complete degeneration had taken place.

In summarizing Funsten states that it seems very difficult at the present time, either from the evidence presented by many authors or from his own observations, to draw definite conclusions as to the etiology of the progressive muscular dystrophies. If one is influenced entirely by the theories of endocrine origin he will find many stumbling blocks. It is hard to believe that a cystic tumor or other disease of one of these glands can always locate itself in just the area to cause repeatedly the identical or almost identical clinical entity. The evidence introduced in this respect does not always seem to be entirely sound. On the other hand, the recoveries reported in the literature and those in the author's own cases seem to be beyond question. In progressive muscular dystrophy there is not the low fatigue coefficient, within physiological limits, that one would expect to find. The muscle fibers which remain unaffected by the disease seem to be acting to the extent of their normal limit. It is generally conceded that the amount of blood sugar is low and that when sugar is fed it is rapidly excreted. Possibly something happens to the muscular substance which should activate the transforming enzyme. To determine the etiology of the condition more pathologic and chemical study must be made by men who go into their work with a substantial knowledge of what has already been said and done on the subject.

PHILIP LEWIN, M.D.

Tubby, A. H.: Dupuytren's Contraction of the Palmar Fascia. *Practitioner*, 1923, CX, 214.

The author gives an excellent description of the onset of the contraction and states that microscopic and bacteriologic examinations of specimens disprove the theory that it is due to infection of the palmar fascia entering through the sweat glands of

the palm and causing a chronic septic lymphangitis. He believes that the contraction is a fibrositis or the local expression of some subtle change in the bodily metabolism. Its frequent association with rheumatism and almost constant association with a source of infection suggest that it has some relationship to a low-grade sepsis, particularly that arising from infections in the alveoli and gums. Just as arthritis deformans is more common in injured joints or those on which persistent strain has been thrown, the contraction appears in the palm which is exposed to trauma and irritation.

The wide dissection of all involved tissue is advocated. In addition, an injection of fibrolysin should be made at five or six points in the surrounding tissues before closure of the wound. This, Tubby believes, will prevent return of the contraction. The after-treatment is splinting in full extension for a week, followed by passive motion to prevent stiffness.

WILLIAM H. BYFORD, M.D.

Moore, B. H.: Abnormalities of the Fifth Lumbar Transverse Processes Associated with Sciatic Pain. *J. Bone & Joint Surg.*, 1923, V, 212.

There is still wide divergence of opinion regarding the relationship between abnormal transverse processes of the fifth lumbar vertebra and sciatic pain. Adams, in 1910, first suggested that such abnormalities might be the cause of the associated sciatica. The X-ray often reveals winged or sacralized processes in persons without symptoms, but persons with severe sciatica may present sacralized transverse processes.

The author reviews nine cases. The first was that of a woman 24 years old, the mother of four children, who for five years had had pain low in the lumbar region and in the upper part of the left hip just outside the sacro-iliac joint. Examination revealed a moderate list to the right and moderate tenderness over the lower portion of the left lumbar muscle. In forward bending there was pain in the left hip about 2 in. outside the sacro-iliac joint, and the spine could not be brought beyond the vertical. The muscles of the left thigh and leg were less firm than those of the right. Sensory changes were not marked. The Wassermann test was negative. X-ray stereoscopic plates revealed on the left side a large fish-tailed transverse process which, in its upper portion, impinged on the ilium. No arthritic changes were seen.

Operation performed February 24, 1921, consisted of a transversectomy of the left fifth lumbar vertebra. The postoperative X-ray examination showed that not all of the process had been removed. The patient made a good recovery, and has had no pain since three weeks after the operation.

The second case presented a long, hypertrophied fifth lumbar process on the right side which was in contact with the ilium, and a strong fibrous cord extending from the tip of the process to the inner surface of the ilium. A transversectomy was done and the cord cut free.

The other cases had similar histories and physical findings. In one, the author excised the portion of the ilium impinged upon by the transverse process. Transversectomy was not done. In another case with right sciatic pain and marked limitation of motion in the lumbar spine complete relief followed tonsillectomy.

Several theories have been offered to account for the pain: one, that it is produced by pressure on the soft parts between the transverse process and ilium; another, that it is caused by arthritis or irritation of abnormal bursæ or joints; a third, that it is due to strain of the sacro-iliac and lumbo-sacral joints caused by leverage of the transverse process; and a fourth, that it is the result of stretching or pressure on the nerves of the lumbo-sacral plexus.

In none of the cases operated upon by the author was muscle found interposed between the process and the ilium. Neither were bursæ discovered. In Moore's opinion the leverage theory seems most plausible as leverage would cause a shifting of the entire fifth lumbar vertebra.

Various methods of treatment have been employed and all of them have given good results in certain cases. Opinions differ as to the results of operation. The author made a 6-in. skin incision over the posterior portion of the iliac crest, stripped the lumbar and gluteal muscles subperiosteally from the crest, and removed a segment of bone 2 by 1 in. from the iliac crest where the transverse process impinged.

No plaster or braces were used. The patients got out of bed in ten to fourteen days, and back-bending exercises were begun as soon as they were possible without discomfort. JOHN MITCHELL, M.D.

Nuttall, H. C. W.: Tuberculosis of the Sacro-Iliac Joint. *Lancet*, 1923, cciv, 839.

The author surveys the literature on this subject and presents the records of nine cases. The sacro-iliac joint is an arthrodial or gliding type of diarthrosis. The ligaments may be divided into two groups, the capsular and the accessory. The capsular ligaments are the superior, inferior, anterior, and posterior sacro-iliac, and an interosseous. These are blended together to form the capsule and prevent the spread of pus posteriorly. The accessory ligaments are the great and small sacro-sciatic, the sacro-lumbar, and the ilio-lumbar, and the lumbar aponeurosis, the tendon of the erector spinæ, and the fascia lata. These, by their extensive attachments, prevent excessive movement at the joint and provide a stout pelvic brace after extensive resection.

Movements of the sacro-iliac joint, which are limited in extent, consist of an up-and-down and forward-and-backward gliding and slight rotation on a transverse axis. During pregnancy these movements are increased.

The nerve supply consists of the superior gluteal and branches from the anterior and posterior primary divisions of the first and second sacral

nerves. The lumbo-sacral and obturator nerves are related to it anteriorly. The nerve roots concerned include practically all of those forming the lumbo-sacral plexus.

The intimate relations are: above, the iliacus and psoas; below, the pyriformis, the superior gluteal nerve, and the gluteal vessels; posteriorly, the dense ligaments and the erector spinæ; anteriorly, the internal iliac vessels, the lumbo-sacral cord, and the obturator nerve; externally, the ilium covered by the glutei; and internally, the upper sacral foramina and the sacral nerve roots.

Sacro-iliac tuberculosis is rare as compared with tuberculosis of the spine or hip. With regard to its age incidence the author states that his patients were between 20 and 30 years old. Five were females. The primary focus is invariably in the bone, and more frequently in the sacrum than in the ilium. Necrosis occurs frequently and sequestra are common. Abscesses form and, in growing, follow the line of least resistance, extending either down the psoas sheath to the thigh or upward into the iliac fossa. As a rule, the abscesses are intra-pelvic. Extra-pelvic abscesses point into the buttock.

The symptoms include swelling or limp which in some cases follows an injury or sprain. The initial symptom is usually pain in the hip, the knee, the lower part of the back, the buttock, or the inner side of the thigh. Usually this is worse at night and is increased by movement. There may be also a slight scoliosis due to the bearing of more weight on the sound limb. Tenderness may be noted on pressure directly over the postero-inferior iliac spine, where the joint closely approaches the surface. Later signs are reflex muscle spasm with lordosis and flexion of the hip, muscular atrophy, flattening of the buttock, and disappearance of the gluteal fold.

The X-ray will show bone changes after the disease has progressed one or two months.

The condition must be differentiated from acute infections (pyogenic or gonorrhœal), osteo-arthritis and sprain, affections of neighboring bones and joints, sarcoma of the ilium or sacrum, malformations of the fifth lumbar vertebra, true sciatic neuritis, tumors of the cauda equina, growths in the pelvis, ovarian and uterine disease, and appendicitis.

The prognosis is unfavorable. The only case in the author's series which was cured was the only one subjected to excision. Picque, however, reported five cures in seven cases following radical treatment.

In the author's opinion the old method of treatment by trephining and curetting was not sufficiently radical, and the value of the bone-graft operations described by American surgeons is doubtful. Children, however, should be treated conservatively.

In Picque's method of treatment the joint is approached by cutting away the overlapping portion of the ilium, part of the sacrum is resected to permit the complete evacuation of any intrapelvic

abscess, and a smooth granulating surface is formed in the diseased areas by means of a gauge or curette. The entire area is then swabbed with "bipp" and the wound packed with gauze soaked in iodoform emulsion. The ends of the packs are brought out at the middle of the incision and the incision is sutured. After forty-eight hours the packs are removed under nitrous oxide anesthesia. The patient is kept in bed with the pelvis firmly bandaged for four or five weeks, after which time a pelvic belt is fitted and he is allowed up on crutches. Usually the crutches may be discarded at the end of the twelfth week.

DANIEL H. LEVINTHAL, M.D.

Blaine, E. S.: Sacro-Iliac Arthrosis Obliterans.
Am. J. Roentgenol., 1923, x, 189.

In studies of the lower part of the spine in approximately 1,800 cases, unusual changes in the sacro-iliac joints were found in eighteen. With such changes there is a history of dull pain, soreness, and stiffness of the back, and an uncomfortable feeling in the lower spine, which increase in intensity from a period of several months to a year. There is no history of injury. The clinical findings are spinal rigidity with limitation of motion of the lower back, localized tenderness over the sacro-iliac joints and the lumbar spine, and a variable degree of atrophy of the erector spinæ muscles.

In most cases the condition is bilateral. In early joint disease the roentgenogram shows a comparative decrease in the sharpness of the joint edges which may be due to localized oedema and swelling of the articular surface tissues. If the disease has progressed, the shadows indicate an erosion of the articular surface edges, the interarticular distance being apparently increased. If the disease is more progressive, there is a considerable decrease in the interarticular distance between the sacrum and the ilium due to loss of the intervening cartilage. An advanced case shows total obliteration of the involved joint resulting in synarthrosis. In some cases a reparative process is evidenced by bone hypertrophy around the obliterated joint.

There are no very marked differences between this condition and typhoid spine. Septic arthritis results in synarthrosis depending upon the virulence of the invading micro-organism. Chronic hypertrophic osteo-arthritis invades essentially the edges of the articular surfaces, and immobilization is caused only by arthritis deformans. In the articular surface there is practically no demonstrable change. Other joints are usually involved simultaneously. The cases reported in this article were those of persons under 30 years of age. Chronic arthritis usually affects those over 35.

Tuberculous arthritis is seldom bilateral. There is rather extensive softening of the cancellous bone around the involved joint, with a greater amount of destruction. A healed tuberculous process usually results in synarthrosis, but with much more alteration in the joint relations than in the cases described.

RUDOLPH S. REICH, M.D.

Jansen, M.: On Coxa Plana and Its Causation.
J. Bone & Joint Surg., 1923, v, 265.

In addition to the gradual flattening of the head, fragmentation, and the development of a broad and horizontal epiphyseal line in so-called Legg's or Perthes' disease, the author draws attention to the changes in the acetabulum. He states that an important mechanical factor in the development of coxa plana is this flattened socket with an associated ischium varum. As the result of this, most of the body weight is brought directly upon a small area of the head, since the head rests only in the upper portion of the too large and too flat acetabulum. The pressure stress causes a shifting of the lines of stress in the head and neck of the femur to which the head gradually conforms. The epiphyseal plane becomes more horizontal, i.e., parallel with the area against which it acts in the acetabulum. It is well known that an increase of pressure may lead to a decrease of growth, particularly when the power of growth has been enfeebled.

The author is inclined to the belief that congenital dislocation of the hip and coxa plana are very closely related. They often occur in the same person or family. One of the main causes for congenital dislocation is the shallow acetabulum, and the reason coxa plana so often develops following the reduction of a dislocated hip is the faulty fitting of the head in the acetabulum and the resulting stress changes in the bone.

In the treatment the patient should be relieved of weight bearing and given free motion of the joint.

ROBERT V. FUNSTEN, M.D.

Johansson, S.: An Apparently Hitherto Unknown Disease of the Patella (Eine bisher anscheinend unbekannte Erkrankung der Patella). *Ztschr. f. orthop. Chir.*, 1922, xliii, 82.

The author describes a change at the tip of the patella similar to Osgood-Schlatter's disease which he has observed in three cases. This condition is found at the age of puberty and manifested clinically by a distinctly circumscribed tenderness without signs of inflammation. The X-ray shows loosening and dispersion of the bone substance. An injury is usually given as the cause. In one case a change in the bone resembling Osgood-Schlatter's disease was noted also in one tuberosity of the tibia. Treatment with rest and compresses usually causes the disappearance of the symptoms in a few weeks.

NEUPERT (Z).

SURGERY OF THE BONES, JOINTS, MUSCLES, TENDONS, ETC.

Campbell, C. W.: Transference of the Crest of the Ilium for Flexion Contracture of the Hip.
South. M. J., 1923, xvi, 289.

The author describes a very ingenious original operation for the relief of flexion contracture of the hip. He states that flexion contracture of the hip greater than 60 degrees renders the extremities



Fig. 2. A, Surface of bone roughened to facilitate new attachment. B, Surface of bone between antero-superior and inferior spines roughened for new attachment of flexor muscles.



Fig. 1. Gluteal muscles with small portion of crest of the ilium being detached.



Fig. 3. Ready for closure. Gluteal muscles dropped into new position and fascia partially closed over detached antero-superior spine.

practically useless, and when both limbs are affected the individual becomes a quadruped because walking in the upright position is impossible.

The operation described is a modification of, and an addition to, the Soutter operation. The author has used it in more than thirty cases. The results have been 100 per cent successful and the procedure has been found especially valuable in the cases of quadrupeds whose condition followed infantile paralysis. Campbell recommends the operation for contractures following infantile paralysis, infectious arthritis, hemiplegia, spastic paralysis, and congenital dislocation of the hip in older children. The technique is as follows:

The skin is incised along the anterior one-half or two-thirds of the crest of the ilium to the antero-superior spine and then downward to the outer aspect of the rectus muscles for about 2 to 4 in.—a typical Sprengel approach to the hip as recently advocated by Smith-Peterson. The superficial and deep fasciæ are incised to the crest and antero-superior spine, and the antero-superior spine is removed with a sharp osteotome. The outer one-fourth of the crest is chiseled through from before backward, or the anterior two-thirds, or the entire crest, as necessary, and then, with a heavy osteotome, the entire mass is peeled subperiosteally downward to the rim of the acetabulum, above which a tract of bone about 1 in. in diameter is denuded parallel with the crest of the ilium.

The raw surfaces of the transferred crest of the ilium and antero-superior spine fall by gravity, so that the raw bony surfaces approximate. If this does not reduce flexion, the anterior structures, such as the psoas, fascia, or capsule of the hip joint, may be easily attacked. The superficial fascia above is stitched to the deep fascia at a point below, the skin incision being brought about 1 in. below the crest of the ilium to avoid possible pressure. The skin is closed with dermal sutures. A plaster cast, applied in hyperextension, is worn for eight weeks.

Campbell has had no fatalities and no alarming symptoms in the use of this procedure. He designates it "transference of the crest of the ilium" because in from two to three months a massive bony ridge can be found along the line of attachment of the new crest.

To illustrate the type of condition under consideration, though practically all hip contractures are amenable to this procedure, one case is briefly described and illustrated.

This operation is based upon proper mechanical principles. The removal of the crest with the attached outer one-fourth and the denudation of the dorsum of the ilium give an attachment of the muscles which is more firm than if they were merely severed and left loose in the soft tissues. Bony union between these points renders subsequent contracture impossible, a recurrence which might develop if the muscles remained loose in the soft

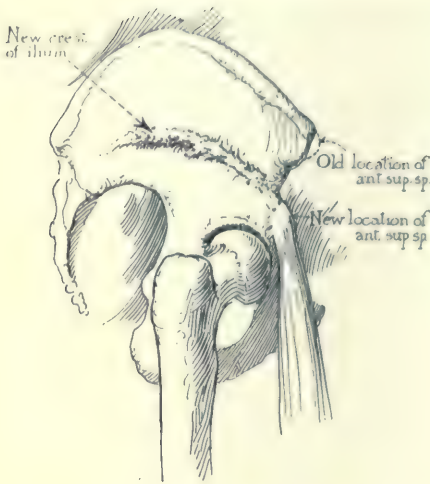


Fig. 4. Schematic drawing showing condition about one year after operation, with the formation of a new crest of the ilium and attachment of the antero-superior spine.

tissues. There is no great interference with the blood or nerve supply. The attachment is merely transferred to a lower point. This corrects the deformity and in no way inhibits physiological muscle action.

One very extreme case of quadruped locomotion in which a remarkably good result was obtained is shown by photographs taken before and after operation.

PHILIP LEWIN, M.D.

Fisher, A. G. T.: Internal Derangements of the Knee Joint: A New Method of Exposure.
Lancet, 1923, cciv, 945.

One of the most important causes of poor results in the operative treatment of internal derangements of the knee joint is inadequate exposure with consequent incomplete operation. With certain exceptions, most operations for internal derangements of the knee should be of the nature of an exploratory arthrotomy.

Exploratory arthrotomy is indicated by:

1. The difficulty of differentiating loose bodies, lesions of the internal and external semilunar cartilages, hypertrophy of, or hæmorrhage into, a synovial fringe or alar pad, and the more rare causes of anomalous symptoms, such as foreign bodies in the joint, isolated lipomata, diffuse osteochondromatosis of the synovial membrane, and sarcoma. Before arthrotomy is done, extra-articular causes which interfere with tendon action and may give rise to similar symptoms must be excluded.

2. Co-existent pathologic factors. Synovial chondromata or osteochondromata are not infrequently found associated with injury of the semilunar cartilage or the presence of a loose body. Hypertrophy of the infrapatellar pad of fat is also

commonly associated with other internal derangements.

In the author's opinion, transfixation and local removal of a loose body is unscientific unless it is followed by complete exposure.

As a rule curved or straight lateral incisions over the joint space do not yield as satisfactory results as the more complete exposure.

The transpatellar incision into the knee joint gives a good exposure of practically the entire anterior compartment. In the hands of the surgeon who originated the method this is a procedure giving good results, but there are physiological objections to the transpatellar route, particularly if the most accurate apposition of bone and cartilage is not obtained. True cartilaginous repair does not take place in incisions in the center of articular cartilage, and, if such incisions heal at all, it is by an imperfect fibrous tissue. Imperfect apposition may set up a traumatic osteo-arthritis causing a harsh grating when the patella is moved, aching and pain.

The operation described by the author is particularly applicable to cases in which the symptoms indicate derangement at the inner side of the joint. If the derangement is at the outer side of the joint, the positions of the incisions in the skin and capsule are reversed.

The skin is prepared by the application of iodine, and a tourniquet is applied. The incision is begun in the midline an inch above the uppermost limits of the suprapatellar pouch, is curved slightly around the inner border of the patella, extended along the inner border of the ligamentum patellæ, and ended below and slightly to the inner side of the tubercle of the tibia. The skin and subcutaneous tissue are reflected outward. A midline incision is then made through the fascia covering the quadriceps tendon and extended downward as far as the tubercle of the tibia. The quadriceps tendon, the periosteum of the patella, and the ligamentum patellæ are avoided. This fascia is raised and reflected inward. The capsule is then divided $\frac{1}{4}$ in. from, and parallel with, the inner border of the patella, the incision being extended upward through the inner fibers of the quadriceps tendon and downward along the inner border of the ligamentum patellæ. The synovial membrane is then divided along the line of the capsular incision and the patella dislocated to the outer side of the joint. On further flexion of the joint, excellent exposure of the entire anterior compartment is obtained. The introduction of the finger is poor technique and, with this incision, is unnecessary. In some cases the infrapatellar pad of fat and the alar pad must be cut. There is no objection to moving the joint during the operation; in fact, this frequently facilitates the discovery of loose bodies or tags of cartilage.

After the completion of the intra-articular stage of the operation, the knee is extended, the patella replaced, and the synovial membrane closed with a continuous suture of fine catgut. The incision in

the alar pad is carefully sutured. If the pad shows pathologic changes it is removed. The capsule is closed with a continuous suture of stout chromicized catgut. The fascial flap is next sutured with a continuous suture of medium catgut. The skin is sutured with interrupted silkworm gut sutures. The tourniquet is not removed until the dressings and bandages are applied.

The after-treatment consists in supporting the limb in slight flexion on pillows. No splint is used. The skin sutures are removed on the seventh day, when active and passive movements and massage are instituted. The patient is up in a chair daily, and at the end of the second week begins to walk. The massage and movements are continued. At the end of the fourth week the patient is able to walk almost normally. DANIEL H. LEVINthal, M.D.

Steindler, A.: The Treatment of the Flail Ankle: Panastragal Arthrodesis. *J. Bone & Joint Surg.*, 1923, v, 284.

The operation presented consists in the complete denudation of cartilage from the astragalus and all its articulations. This causes an arthrodesis of the astragalo-tibial, astragalo-scaphoid, and astragalo-calcaneal joints. A plaster cast is then applied to the limb from the toes to above the slightly flexed knee for three to five months. Toe drop of about 20 degrees is allowed.

The operation is indicated especially in cases of flail ankle in which there is an equinus, equinovarus, or equinovalgus but not much deformity. The presence of the extensor of the knee or part of the flexors of the knee is of great importance, but strong glutei might be sufficient for good knee action after the operation.

Faulty alinement of the knee must be taken care of by an additional osteotomy of the tibia.

The ankylosis obtained by this method is thorough and solid, and in the majority of cases the X-ray shows complete fusion of the joints. In cases of extreme calcaneocavus in which backward displacement of the foot is of advantage, the Whitman astragalectomy is preferable.

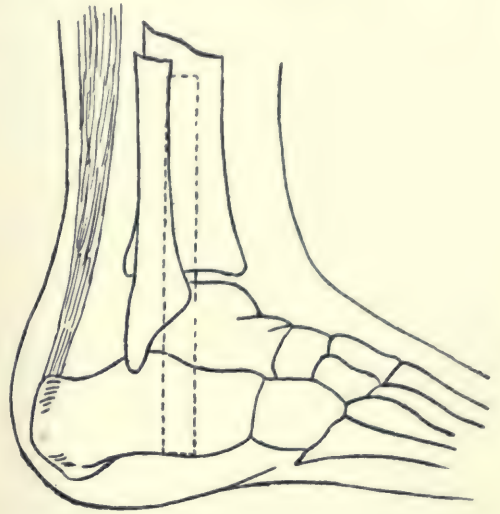
The author reviews thirty-six cases treated by arthrodesis. Twenty-one of the patients have been examined a year or more after the operation. Of these, eighteen walk with the foot in the correct position and without braces.

Steindler feels justified in recommending the operation as especially suited for drop-foot or drop dangle foot.

ROBERT V. FUNSTEN, M.D.

De Mata, T. R.: Arthrodesis of the Ankle (Sobre artrodesis del tobillo). *Rev. españ. de ciruj.*, 1922, iv, 494.

The author's technique for arthrodesis of the ankle is a combination of resection of the articular cartilage and the placing of a transosseous bone graft of the Lexer type. In the first stage of the operation a large Kocher arthrotomy is done with a semicircular incision including the external malleolus



The placing of the bone dowel.

and extending to the dorsal part of the foot in the median line. The external lateral and calcaneal ligaments are sectioned and the peroneal tendons are freed by dissection at their upper end. The external tendons of the toes are carefully freed to avoid injuring them and to prevent rupture of the dorsal vessels of the foot. The joint is then opened and the foot held inward so as fully to expose the articular surfaces. All of the investing cartilage is then removed, including that of the astragalar pole.

The plantar stage of the operation consists of a median plantar incision which is carried to the bone and perforation of the calcaneum and astragalus by an electrically driven drill directed so that it will perforate the tibia. The perforation of the tibia can be made either through the calcaneum and astragalus or directly by luxating the foot. The bone dowel is taken from the tibia and adjusted carefully to the bone tunnel.

Finally the distal ends of the peroneal tendons are sutured to the periosteum of the external malleolus and may or may not be sutured to its proximal ends. The operation is concluded by enlarging the proximal ends by a Bayer tenoplasty and suturing the distal ends to the external surface of the calcaneum.

The operation is applicable especially to cases of infantile paralysis. In a case treated in this manner by the author the bone graft had not been resorbed a year after the operation.

W. A. BRENNAN.

FRACTURES AND DISLOCATIONS

Bérard, L.: Bone Grafts (Greffes osseuses). *Bruxelles-méd.*, 1923, iii, 497.

Bérard deals with thirty-eight cases of bone grafting done at the surgical clinic of the University of Lyons which he has been able to follow for a long

period. Fibular grafts were usually employed at first, but recently the grafts have been taken from the tibia and the instrumentation of Albee has been adopted. In depth the piece of bone removed extended to the medullary canal. The periosteum was left in place. In Bérard's opinion the presence or absence of the periosteum does not seem to have any influence upon the evolution of the graft.

Osteoperiosteal grafts of the Ollier-Delagenière type have been used only to obliterate skull defects, in cases of persisting pseudarthrosis in one of the extremities, and cases of delayed consolidation. Homografts were employed in four cases and grafts of dead human bone in five.

The grafts were placed as follows: cranium, four; spinal column, five; humerus, two; radius, ten (eight autografts and two homografts); ulna, three (two autografts and one homograft); tibia, twelve; and femur, two.

In twenty-five of the thirty-eight cases the entire graft became consolidated. In six cases small fragments were eliminated because of suppuration in the neighboring soft parts, but the final result was not definitely compromised. In seven cases there was late elimination of the graft. In three of these the pseudarthrosis persisted, but in the others consolidation was favored by the temporary presence of the graft and became effective after one or two years.

To obtain good results with beef bone grafts, the contact with the host bone must be as wide as possible whether the grafts are dovetailed into the medullary canal, placed according to Albee's technique, or made to adhere simply by sliding them over the surface. If it is necessary to hold the fragments in position, catgut or tendon sutures or metallic wire should be used. These are preferable to the Lambotte or Lane screwed plates as when such metallic plates are left in place for a long time they tend to cause necrosis of the superficial layer of the graft and the graft is eliminated when the plate is removed. Moreover, even if the plates are kept in place for a long time, total resorption of the graft may occur.

The best results are obtained with autogenous grafts taken from the bone to be repaired or some other part of the skeleton. Homogeneous grafts are less well tolerated, more easily eliminated by infection, and more easily resorbed. It appears that they serve only to convey mineral matter and as a framework for the repair of the bone loss by the remaining fragments. The same is true of grafts of dead bone.

In the cases studied the grafts examined microscopically some time after the operation had the appearance of living bone. W. A. BRENNAN.

Bazy, L.: The Technique of the Operative Reduction of Old Luxations of the Shoulder (Technique de la reposition sanglante dans les luxations anciennes de l'épaule). *J. de chir.*, 1923, xxi, 145.

Bazy has devised a new technique for the operative reduction of old dislocations of the shoulder

which he claims is more simple than procedures employed heretofore.

Free access to the luxated head and the glenoid cavity is obtained by making a vertical incision along the glenoid cavity and a transverse incision forming with the first incision an inverted L or a T.

Temporary resection of the coracoid process is then done to facilitate exploration of the luxated head and to throw enough light on the axillary nerves and vessels so that injury to these structures, a most serious complication, may be avoided.

Resection of the subscapular muscle permits simultaneous reduction of the luxation and opening of the articulation for exploration of its cavity. The retracted subscapular muscle is the principal obstacle to the replacement of the luxated head. The disinsertion of the subscapular muscle permits wide opening of the joint and gives a view of the old and new articular cavity so that the reconstruction of an anterior capsular insertion can be accomplished. The scapulo-humeral articulation is reconstructed by suturing the deep surface of the subscapular to the glenoid ridge and reimplanting the muscle on the small tuberosity. W. A. BRENNAN.

Hannecart, A.: Wire Circling of the Olecranon by a New Method (Cercage de l'olécranon par une technique nouvelle). *Arch. franco-belges de chir.*, 1923, xxvi, 199.

Hannecart's method of osteosynthesis of the olecranon makes use of the coronoid process to support the bronze aluminum wire which encircles the olecranon and passes through the tendon of the brachial triceps.

Hannecart has used this method in two cases. One was a case of subluxation of the elbow and a fracture of the upper extremity of the ulna. In both cases the method was easy to carry out and entirely satisfactory. Its advantages are: (1) that it can be used in all cases; (2) that the coaptation of the fragments, even if they are multiple, is very well assured and maintained; (3) that the metallic wire does not traverse the bones and therefore does not cause trophic changes such as osteoporosis; and (4) that mobilization of the joint is possible at about the twelfth day or earlier. W. A. BRENNAN.

Towne, E. B.: Fracture-Dislocations of the Carpal Bones. *Surg. Clin. N. Am.*, 1923, iii, 741.

The X-ray has greatly increased our knowledge of the signs and mechanism of three common injuries, viz., fracture of the scaphoid of the wrist, anterior dislocation of the semilunar, and anterior dislocation of the semilunar with fracture of the scaphoid.

The author reports four cases which illustrate the late results of carpal injuries.

Case 1 was that of a woman 31 years of age who was struck by an automobile. The force of the fall was received in the right palm with the wrist and elbow fully extended. Examination showed a slightly swollen claw hand and considerable thicken-

ing of the wrist. A hard prominence was felt under the flexor tendons distal to the forearm bones and another on the dorsum of the wrist between the base of the third metacarpal bone and the lower end of the radius.

A roentgenogram revealed an anterior dislocation of the semilunar and a fracture of the navicular. The semilunar and the proximal fragment of the navicular were pushed forward and rotated anteriorly 30 degrees by the capitate and other carpal bones.

Two days after the injury the dislocation was reduced by pulling the hand down in the line of the forearm, and with continued traction the wrist was hyperextended. Splints were worn until the fourth day when they were removed daily for physiotherapy. On the thirteenth day the splints were discarded. Ten months after the injury the wrist was normal.

Case 2 was a case of anterior dislocation of the semilunar and the proximal fragment of the navicular associated with median nerve injury, paresis, anæsthesia, and severe causalgia. This case was not treated for five weeks after the injury as the condition had not been diagnosed before the author was consulted. The lunate and proximal fragment of the navicular were excised through a volar incision. The median nerve showed moderate hyperæmia only. Four weeks after the operation the sensory loss, the palsy of the small muscles of the hand, and the vasomotor disturbances were unchanged. The wrist had palmar flexion of 45 degrees and ulnar flexion of 10 degrees, but no extension or radial flexion.

A second operation was therefore performed as it was thought the restriction of radial and dorsal flexion was due to the presence of the distal fragment of the navicular. One year after the second operation no further improvement was noted. The hand remained weak and showed considerable muscular atrophy.

Case 3 was a case of anterior dislocation of the proximal fragment of the fractured navicular with posterior dislocation of the lower end of the ulna and compression of the median nerve. Closed reduction accomplished on the second day was followed by an excellent functional result.

Case 4 was a midcarpal fracture dislocation, peritriquetrolunate anterior dislocation of the hand with fracture of the navicular. Examination revealed antero-posterior thickening of the wrist and bony prominences across its volar and dorsal aspects. The bases of the metacarpal bones were displaced forward. Closed reduction after ten days resulted in good function.

JOHN MITCHELL, M.D.

Dhalluin, A.: Traumatic Luxations of the Spine
(Des luxations traumatiques du rachis). *Arch. franco-belges de chir.*, 1923, xxvi, 97.

Dhalluin reports three cases of traumatic luxation of the spine. The first was that of a woman 47 years of age who had been struck by a street car.

The accident was followed by complete paralysis of the lower limb and retention of urine. The X-ray showed luxation of the first lumbar vertebra backward and to the right of the second, and fracture of the right transverse processes of the third and fourth lumbar vertebræ. The terminal medullary cone and the nerves of the cauda equina were destroyed. Such a case is exceptional. Under treatment by continuous extension, sensation and spontaneous urination slowly returned, but the patient is still under treatment after several months.

The second case was a forward luxation of the fourth cervical vertebra with quadriplegia in a man who was hurt in a football game, his chin striking against the sternum in forced flexion. After the accident the patient was unable to move his head or limbs and suffered retention of urine. The X-ray showed that the fourth vertebra had passed in front of the fifth, the upper part of the cervical column being pushed forward, and that the lower articular process of the fourth had passed in front of the upper process of the fifth. Reduction was effected under chloroform anæsthesia. Three weeks later the patient was able to walk, and one month and a half later was in fairly good condition.

The third case was that of a man who fell while carrying a heavy weight on his shoulders, the weight causing forced flexion of the cervical column and forcing the chin against the sternum. The accident was followed by total paralysis of the limbs, retention of urine, and priapism. X-ray examination showed displacement of the fifth cervical vertebra. The articular processes of this and the next vertebra were widely separated. Medullary lesions were marked. Reduction was easily effected but a few days later the patient fell into coma and died. At autopsy the cord was found lacerated at the site of the luxation and completely sectioned between the fifth and sixth vertebræ.

Dhalluin discusses the mechanism of spinal luxation and includes in his article several roentgenograms of his case.

W. A. BRENNAN.

ORTHOPEDICS IN GENERAL

Constantine, M., and Moffat, B. W.: Managing Orthopedic Cases. *Trained Nurse & Hosp. Rev.*, 1923, lxx, 405.

Stockinette jackets are used for body casts, and tubular stockinette is employed for casts of the extremities. Prominent bones and kyphoses are protected from pressure by gray felt about $\frac{1}{4}$ in. thick. The most acceptable padding is cotton wadding about 6 in. wide.

Dental plaster usually hardens quickly, but most other plasters require at least a handful of salt to a basin of water. The plaster rolls are immersed and handed to the doctor after they have stopped bubbling.

The finished cast should be exposed to the air for twenty-four hours and the patient turned to facilitate drying. A board should be placed under the

mattress to prevent sagging and consequent breaking of the plaster. Bradford frames aid the nurse and patient materially after the application of a spica.

Interference with circulation due to pressure of the cast or operative trauma must be relieved. The limb should be elevated and, if necessary, a vertical incision should be made in the cast or the entire cast split. If neglected, constriction may cause pressure sores, gangrene, or Volkmann's paralysis. In the cases of old, paralyzed, or emaciated patients pressure sores are almost unavoidable. Burning pain under the cast and an odor over a certain area will aid in the detection of pressure sores.

Operative incisions covered by plaster should be observed by cutting a window in the cast. If hot dressings are to be applied, the stockinette should be pulled through the window and the edges shellacked, the area thus being made waterproof.

Patients in a long spica may be made more comfortable in a high Fowler position. Elevation of a leg recently operated upon relieves congestion and promotes healing. The skin may be rubbed and talcum powder distributed over otherwise inaccessible areas by passing to and fro a bandage placed under the cast with its ends projecting.

Tubular jersey can be extended from under a body cast and reflected over it and the upper edge sewed to the lower. Suspending infants and children with incontinence by tapes and rubber-covered pillows prevents them from soiling the casts. The casts are shellacked when dry so that they can be washed clean when necessary. Rough edges should be trimmed.

For the removal of a cast the nurse should provide a plaster knife, plaster shears, and acetic acid or hydrogen peroxide to soften the plaster.

DANIEL H. LEVINthal, M.D.

SURGERY OF THE BLOOD AND LYMPH SYSTEMS

BLOOD VESSELS

Eloesser, L.: Aneurism of the Common Iliac Artery: Gradual Occlusion by Ligation with a Free Graft of Muscle. *Surg. Clin. N. Am.*, 1923, iii, 681.

Reviewing the ligations of the iliac artery in the century from Gibson's first operation in 1812 to Halsted's report in 1912, Eloesser found that in a total of ninety-two ligations of the common iliac artery for aneurism there was only one fatality (Trendelenburg's case). The rarity of aneurism at this location is evident from the report of Lucke and Rea on 12,000 autopsies in which 321 aneurisms of the thorax and abdomen were found but none affecting the common iliac arteries.

The author reports the case of a man of 60 years with a history of severe scarlet fever and a chronic cough with bloody expectoration. The diagnosis of chronic pulmonary tuberculosis was confirmed by the demonstration of tubercle bacilli in the sputum. The history was negative for lues, and repeated Wassermann tests were negative. In 1918 the patient experienced a sudden attack of severe pain in the left groin which was associated with swelling in the lower abdomen and groins. Rest in the hospital for a month was followed by improvement, but subsequently a painless swelling of the left leg developed. This also gradually disappeared and the patient remained in fair health for three years.

In 1922 an attack of severe pain in the back was followed by purplish discoloration of the perineum spreading to the hips and groins. Simultaneously a swelling appeared in the lower abdomen in association with urinary frequency, swelling of both legs, and pressure in the rectum. Physical examination revealed a systolic pressure of 146 mm. Hg. The temperature and pulse were normal. A large, pulsating, expansile mass filled the lower abdomen and extended upward to within 1.5 in. of the umbilicus. No murmur or thrill was noted at any time. The pulse in the right dorsalis pedis artery was good, but that in the left was at times barely palpable. Both posterior tibials pulsated. A diagnosis of aneurism of one of the left iliac arteries was made.

At operation anæsthesia was induced with nitrous oxide and local novocaine infiltration. An incision was made in the left flank and the peritoneum pushed forward. The left iliac artery and vein appeared normal. The tumor was found to be retroperitoneal and to extend upward from the pelvis to the right kidney. The first incision was then closed and a second made on the right side. This was begun 1 in. above Poupart's ligament and extended upward and backward toward the costal

arch. The aneurismal sac was identified. Compression of the pedicle at the level of the right kidney obliterated the pulse in the sac. A muscle fascia graft 4 in. long by 1 in. thick was taken from the external oblique and swung around the artery. Catgut stitches were placed to hold the graft in place, and with a second catgut ligature passed around the sling thus formed the pulse in the sac was completely obliterated. The wound was then closed. The operation consumed four hours.

The postoperative course was stormy. Pulsation returned to the aneurism. Thirty hours after the operation the patient went into shock. Two blood transfusions were followed by gradual improvement in the pulse and general condition. The legs were warm but showed slight œdema. No pulsation was felt in the right femoral, the popliteal, the tibial, or the dorsalis pedis arteries.

The aneurismal sac still remains palpable but is somewhat smaller. Pulsation is still demonstrable within the tumor mass. Both legs are œdematous, but the pain and the urinary and rectal discomfort have largely disappeared. JOHN W. NUZUM, M.D.

Kolin, L.: The Anatomy, Clinical Aspects, and Treatment of Aneurism of the Superior Mesenteric Artery (*Zur Kenntnis der Anatomie, Klinik und Therapie des Aneurysma der Art. mes. sup.*). *Arch. f. klin. Chir.*, 1923, cxxiii, 684.

Aneurisms of the superior mesenteric artery are seen very seldom. The case reported in this article was that of a man 29 years old who was suffering from endocarditis. Within a period of three months a palpable, pulsating tumor developed in the epigastric region in association with severe attacks of pain which were followed by the passage of bloody stools. A very severe attack of pain led to laparotomy which revealed at the base of the mesentery an aneurism the size of an egg, which was covered by peritoneum and embedded in indurated tissue. In its removal, ligation of the superior mesenteric artery was necessary. No trophic disturbances were found in the intestine. Death occurred at the end of seventeen hours.

Autopsy showed a dark red, somewhat distended intestine and blood in the stomach and intestine, but no trophic disturbances. Dissection of the aorta showed that the vessel affected by the aneurism was the superior mesenteric artery. The ligature was 3 cm. from the aorta. The aneurism itself was almost filled with coagulated blood.

The few cases so far reported in the literature and the anatomy of the superior mesenteric artery and its branches are reviewed. The author comes to the conclusion that ligation of the trunk will not endanger the nutrition of the intestine if the closure

of the lumen occurs gradually so that a sufficient collateral circulation can develop, i.e., if the vessels, particularly the pancreaticoduodenal artery (the connecting vessel between the superior mesenteric and the hepatic arteries), can become vicariously dilated. The development of the aneurism in Kolin's case was caused by a mycotic embolus due to the endocarditis. To preserve the nutrition of the intestine it is necessary, in extirpating the aneurism, to ligate as near the intestinal wall as possible so that the other branches of the superior mesenteric artery, particularly the jejunal arteries, will be spared. Ligation of the superior mesenteric vein alone nearly always results in a fatal intestinal infarction. The absence of unfavorable results following ligation of the vein in the author's case was probably due to the fact that the vein had been so compressed by the surrounding indurated retroperitoneal tissue that the venous return was rendered possible by the dilated gastro-epiploica and inferior mesenteric veins.

HARMS (Z).

Schoenbauer, L., and Gold, E.: Can Drainage Tubes Cause Erosion of Blood Vessels? (Koennen Drainagerohre Blutgefäesse arrodierten?) *Arch. f. klin. Chir.*, 1923, cxxiii, 43.

To determine whether a primary injury to the blood vessel is necessary for the occurrence of erosion hæmorrhage or whether infection alone is sufficient, the authors introduced rubber tubes close to the blood vessels of animals and examined the resulting changes macroscopically and microscopically. In no case did they succeed in causing an erosion hæmorrhage, evidently because the arterial wall was particularly resistant to the bacteria used. They concluded that if the wound is kept aseptic and the vessels are sound, there is no danger of erosion. The blood vessels show no structural changes except a proliferation of the intima and widening of the adventitia. For the occurrence of hæmorrhage there must be decreased resistance of the vessel wall such as is caused by primary injury to the vessel or infectious necrosis.

BRUNNER (Z).

BLOOD AND TRANSFUSION

Bauer, K. H.: The Inherited and Constitutional Pathology of Hæmophilia (Zur Vererbungs- und Konstitutionspathologie der Haemophilie). *Deutsche Ztschr. f. Chir.*, 1922, clxxvi, 109.

This extensive work is based on the 233 hæmophilic families so far known. The empirical law of heredity is as follows:

In hæmophilia the sexes are reciprocal; the males are the bleeders, but do not transmit the condition, while the females, who transmit the condition, do not bleed. The author discusses the various attempts which have been made to explain this law. In his opinion, the hæmophilia factor is coupled with the sex factor, and is a recessive lethal factor.

The value of analyzing the inheritability of such a condition as hæmophilia lies in the possibility of

demonstrating: (1) a single definite unity of transmission in man, (2) transmission according to strict biological laws; (3) the localization of the transmitting factor in a certain chromosome; and (4) its connection with another factor of transmission, the sex factor. Moreover, a knowledge of the formal genesis of hæmophilia and its chemico-physical definition permits far-reaching conclusions with regard to such types.

According to the theory of the biology of heredity, all transmissible qualities are found, from the first nucleus division, in the chromosome constituents of all other cells of the organism, each body cell inheriting the entire original chromosome combination. Accordingly, the hæmophilia factor is present in every cell of the body.

STAHL (Z).

Dyke, S. C., Oxon, D. P. H., and Budge, C. H.: On the Inheritance of the Specific Iso-Agglutinable Substances of Human Red Cells; With a Note on the Possible Existence of a Lethal Factor. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Path., 35.

From observation made on 384 persons constituting seventy-two families, the authors came to the conclusion that the properties *A* and *B* can never appear in the offspring without having been present in at least one of the parents, and that, when inherited, these properties appear in the offspring in accordance with recognized mendelian laws.

The observations forming the basis of this article were made upon material provided by the maternity ward of St. Thomas Hospital. With the co-operation of the nursing staff, blood was collected from the umbilical cords of infants at birth and used for ascertaining the group of the child. Corpuscles for the same purpose were obtained from the mothers as they lay in the wards, and from the fathers when they visited the hospital. In this way observations were conducted upon both parents and offspring in ninety-eight cases.

The blood for ascertaining the group of the infants was collected in a test tube and allowed to clot. The serum was then pipetted off and the corpuscles were washed three times in a 2 per cent sodium citrate solution in normal saline. Blood was obtained from the parents by finger puncture, the drop being collected in similar citrate solution. The serum of the parents was not tested, the group being determined by the reaction of the corpuscles alone.

The grouping tests were performed, with slight modifications, in the manner previously described by Dyke.

In considering the group to which the offspring of any two parents may belong, it must be remembered that it is not the group which is inherited. The dominants *A* and *B* and the recessives *a* and *b* are the inheritable factors, and it is on the presence or absence of these that the blood group depends.

So far as groups alone are concerned, ten types of mating are possible, but within all these types, with one exception, there are many possibilities.

The authors' conclusions are as follows:

1. The agglutinable properties *A* and *B* are demonstrable in the blood of the newborn.
2. In their genetic behavior, these properties *A* and *B* are dominants.
3. In their genetic behavior, the agglutinins *a* and *b* are recessives.
4. The properties *A* and *B* cannot appear in the blood of the offspring without having been present in the blood of the parents.

With regard to the possible existence of a lethal factor the authors state that the data at hand show that in all races, whatever the numbers of persons belonging to Groups II and III, those belonging to Group I are always the least numerous. It would seem that there is some factor which inhibits the ready production of Group I persons while there is no such inhibition in the case of the other groups. A suggestion as to the nature of this inhibiting factor is supplied by the known facts in regard to the lethal effect exerted in certain instances by the doubling of the dominant.

There are two possibilities: (1) That Group I includes only persons of this last formula, *AB ab*, and (2) that the three other formulæ may be present but the gametes produced by them bearing two dominants are not capable of fruitful union.

If the second assumption is correct, a person of the formula *AB AB* will be completely sterile, while persons of the formulæ *AB aB* and *AB Ab* will produce only half their proper number of fruitful gametes.

Either assumption would account for a relative diminution of Group I persons as compared with Group IV persons. Which theory is correct can be ascertained only by a series of observations of unions involving Group I persons, and such a series, because of the rarity of Group I, would be difficult to collect.

CARL R. STEINKE, M.D.

Jantzen, W.: The Intravital Course of Hæmolysis, with a Discussion of Blood Transfusion and the Development of Shock from Transfusion (Der intravitale Verlauf der Hæmolyse, zugleich ein Beitrag zur Bluttransfusion und zur Entstehung des Transfusionsschocks). *Klin. Wchnschr.*, 1923, ii, 129.

Immediate shock is to be expected only if the blood of the recipient is highly hæmolytic for the erythrocytes of the donor. Under such circumstances destruction of the erythrocytes may follow immediately. If the serum is only weakly hæmolytic and the blood grouping poorly defined, hæmolysis will occur late, often too late for a preliminary test (a trial injection of 10 c.cm. and observation of the reaction for ten minutes) to be of use.

When the serum of the blood injected destroys the erythrocytes of the recipient, hæmolysis does

not occur before an hour. The clinical picture is determined by the strength of the hæmolytic substances. Depending upon this, there may be shock with hæmoglobinuria or merely a variation in temperature, possibly associated with icterus.

Because of the difficulty of recognizing borderline cases, the microscopic agglutination test will not exclude unsuitable donors with certainty. The best method of preventing shock from transfusion, if the patient's condition will permit the postponement of the transfusion for two or three hours, is the test-tube examination for hæmolysis. TROMP (Z).

Siperstein, D. M.: Intraperitoneal Transfusion with Citrated Blood: A Clinical Study. *Am. J. Dis. Child.*, 1923, xxv, 202.

The author reports five cases of transfusion of citrated blood into the peritoneal cavity of infants. The favorable results were similar to those following transfusion by other methods. No unfavorable results were noted.

In one patient who died three days after the injection of 100 c.cm. into the peritoneal cavity 30 c.cm. of blood were still present, but there were no clots or adhesions. SUMNER L. KOCH, M.D.

Ten Broeck, C., and Bauer, J. H.: Studies on the Relation of Tetanus Bacilli in the Digestive Tract to Tetanus Antitoxin in the Blood. *J. Exper. Med.*, 1923, xxxvii, 479.

The sera of twenty-six persons with tetanus bacilli in the digestive tract were found to contain appreciable amounts of antitoxin.

The sera of thirty persons in whose stools no tetanus-like organisms were discovered were, with two exceptions, free from tetanus antitoxin.

Although the authors have been unable accurately to measure the antitoxin content of these human carriers of tetanus bacilli, they found that 0.1 c. cm. of serum neutralizes ten times the minimum lethal dose of toxin, and it is evident that the carriers have acquired an active immunity due to the bacilli in the intestinal tract.

These results definitely prove that tetanus bacilli grow in the intestinal tract of man.

Many persons who have no tetanus bacilli in their intestinal tracts and whose serum is free from antitoxin show agglutinins to tetanus bacilli. It is probable that such persons have been carriers of the bacilli in the past and that the agglutinins have persisted longer than the antitoxins. It seems probable, therefore, that they are potentially immune to tetanus.

If the presence of tetanus bacilli can be established in the digestive tract of man we have a means of immunization which might be useful in regions where tetanus infections are common.

SAMUEL KAHN, M.D.

PHYSICO-CHEMICAL METHODS IN SURGERY

ROENTGENOLOGY

Ivy, A. C., Orndoff, B. H., Jacoby, A., and Whitlow, J. E.: *Studies of the Effect of the X-Rays on Glandular Activity*. *J. Radiol.*, 1923, iv, 189.

The first part of this article is given over to a general consideration of the biological principles involved when a cell is acted upon by some external influence. A distinction is made between irritation and stimulation. In view of the known action of the roentgen rays, the authors are inclined to skepticism regarding the accuracy of the phrase "stimulative action of the roentgen rays." A critical review of the literature on the subject is summarized as follows:

With the exception of the germinal epithelium of the gonads, glandular epithelium is quite resistant to the effects of the roentgen rays. The literature presents worthy evidence that the glandular activity of some of the glands can be decreased. The dosage of roentgen rays required in each instance has not been accurately determined. As to the stimulation of glandular activity by small doses of roentgen rays, the literature suggests the possibility of such stimulation but it has not yet been demonstrated in a single instance.

The second part of the article deals with the experimental work done to obtain additional information. The submaxillary glands of dogs were irradiated for variable periods under different conditions and the results carefully checked by controls. The experiments are classified as acute and chronic, the acute lasting from three to five hours, and the chronic from one to nine months. The methods used in the acute experiments have been described in detail in a previous paper. The chronic experiments were performed on dogs with a fistula of Wharton's duct. The technique used is described in detail and the results are tabulated. The conclusions arrived at are given in the following summary:

In acute experiments it was impossible to demonstrate that small doses of the roentgen rays stimulated or sensitized the submaxillary gland. The results show that large doses of the roentgen rays in acute experiments caused an immediate depression of the secretory activity of the gland which may be explained by an altered blood flow through the gland.

In dogs with a fistula of Wharton's duct it was impossible to demonstrate that small doses of roentgen rays stimulated or sensitized the submaxillary gland. Large doses did not cause an immediate depression of the secretory activity of the gland, but a differential depression in secretory activity occurred which was first manifested from ten to fourteen days after the exposure of the gland.

One month after the exposure, the gland manifested a depression to all stimuli used. An alteration in the composition of the saliva occurred. Two months after the exposures the secretion remained markedly reduced in quantity, but its composition returned to normal. The depression was not due to any general systemic effect of the roentgen-ray exposure.

Fistula of the duct of the gland did not alter its secretory activity.

The minimum dose required to produce depression of the secretory activity of the submaxillary gland was as follows: 110 kv. max., 10 ma., 25 cm. focal skin distance; portal of entry, 28 cm. square; 1 mm. aluminum filter; time, forty minutes.

The submaxillary gland partially suppressed with atropin was neither stimulated nor sensitized by small doses of roentgen rays.

The immediate effect of large doses of roentgen rays on the histology of the submaxillary gland was practically nil.

The delayed histologic changes were quite marked. At fifteen days the gland showed the following changes: (1) infiltration of round cells about the secretory ducts and blood vessels and in the stroma of the gland; (2) a reduction in the amount of stored mucus in the cells of the alveoli with evidences of degeneration of some of the gland cells; and (3) a proliferation of fibroblasts in the stroma of the gland. No hæmorrhages or signs of previous hæmorrhage were present. At the end of two months the glands were smaller and firmer than those of the normal control, there was less round-cell infiltration than in the glands studied at the end of fifteen days, the fibrous tissue stroma was markedly increased in amount, and the cells of the alveoli were loaded with stored mucus.

These delayed effects of the roentgen rays on the histology of the gland correspond to the changes in the physiology of the gland; for example, the reduction of the viscosity and total solids and the quantity of the secretion during the first month and the return to normal in the composition of the secretion with a permanent reduction in its quantity.

ADOLPH HARTUNG, M.D.

Pilger: *Deep X-Ray Therapy*. *Arch. Radiol. & Electrotherapy*, 1923, xxvii, 364.

The author describes roentgen therapy as practiced at Erlangen by Wintz and Seitz who have brought it out of the chaos of experimental attempts to the basis of a well-founded exact science. The first requirement was the construction of powerful high-voltage apparatus, and the second, the exact measurement of the quantity and quality of the rays. Both of these requirements have been

met and it is now possible to administer predetermined and consistent biological doses.

A brief explanation of the physics and dosimetry of the roentgen rays is given. Since only hard rays can be used for deep therapy, the soft ones are filtered out by zinc and aluminum filters. The influence of scattered or secondary rays arising in the tissue penetrated is an important factor. The "percentage depth dose," i.e., the relation of the dose in the depths to the dose on the surface, depends on three factors, dispersion, absorption, and scattering.

The biological requirement for the treatment of neoplasms is the giving of a destructive dose without injuring the adjacent healthy tissue. This is made possible by the variable susceptibility of different cells. To obtain a more exact solution of this problem it was necessary to ascertain with exactitude the quantity of roentgen rays which is just sufficient to destroy a tumor and no more than the normal tissue and the skin can withstand. These measurements were based on the ionizing effects of the roentgen rays. By means of the instrument used for this purpose, the iontoquantimeter, it has now become possible to regulate the apparatus and the tube so that they will always produce a constant quality and quantity of roentgen rays.

Certain measurements on the patient's body are next required. Wintz determined a fixed biological unit dose—the so-called unit skin dose or erythema dose, i.e., a dose that, eight days after irradiation, produces a slight reddening, and four weeks after irradiation a tender but clearly visible brown. This dose as fixed by a certain number of minutes of exposure with a certain apparatus running under certain conditions and a certain tube was standardized as 100. It causes discharge of the iontoquantimeter in a certain number of seconds. Thus there is a calibration of the iontoquantimeter in relation to the biological effect, and the biological effect of other tubes can be determined by means of the iontoquantimeter. The unit skin dose being standardized as 100 per cent, it was ascertained, for instance, that the cancer-destroying dose is about 90 to 110 per cent, the sarcoma dose 70 to 80 per cent, the sterilization dose 35 per cent., etc.

The Erlangen technique is based directly upon the exact data obtained. Its practical application to cause sterilization in connection with certain gynecological diseases and in the treatment of uterine cancer is described at some length. The necessity for using cross-fire to obtain the required depth dose is brought out. When this is not feasible, it may be necessary to resort to the "distant field" method. Some of the dangers associated with deep roentgen therapy are mentioned and attention is called to the need for adequate preliminary and proper after-care of the patient.

Good results can be obtained in all kinds of malignant growths. Whatever the answer to the question whether operable cancers should be treated

with the roentgen rays alone or should be operated upon and treated only prophylactically with the roentgen rays, there is no doubt that in the development of deep X-ray therapy a great advance has been made in the fight against cancer. The length of time it has been in use, however, is still too short to determine whether this new branch of treatment will ultimately replace surgery entirely. The results so far obtained in cases of malignant growths are at least as good as those of surgery, and a certain percentage of inoperable cases of malignant growths can be cured by the roentgen rays.

As sarcomata are especially suitable for roentgen treatment, amputation should no longer be done because of this condition. Still better are the results in lymphosarcoma and lymphogranuloma. In the treatment of myomata and climacteric diseases the results obtained are excellent and the method is safe and painless. Therefore operation should not be performed in cases of myoma unless the tumor affects the region of the bladder and subsequently causes further complications, unless it shows necrosis and infection, or unless it is so large that it threatens the function of the bladder or rectum.

In the last few years in the Gynecological Hospital in Erlangen it has been found that in cases of chronic inflammatory tumors of the adnexa the suppression of the function of the ovaries for two or three years by means of a suitable dose of roentgen rays (a little less than the full castration dose)—as suggested by Wintz—excellent results may be obtained. Other diseases which can be successfully treated with the roentgen rays are tuberculosis of glands, tuberculosis of the peritoneum, and tuberculosis of the joints, especially small joints. In skin diseases which can be successfully treated with the roentgen rays it has been found that the use of hard penetrating rays gives better results than the use of soft rays. Excellent results have been obtained in advanced cases of actinomycosis. The X-ray has been found of value also to suppress the high hyperfunction or to stimulate a hyperfunction of glands of internal secretion. In the treatment of Basedow's disease, for instance, two-thirds of the unit skin dose to the thyroid and the thymus gives excellent results as regards almost all the typical symptoms.

ADOLPH HARTUNG, M.D.

Hirsch, E. F., and Petersen, A. J.: *The Blood with Deep Roentgen-Ray Therapy; Hydrogen-Ion Concentration, Alkali Reserve, Sugar, and Non-Protein Nitrogen.* *J. Am. M. Ass.*, 1923, lxxx, 1505.

As variations in the amount of the non-protein nitrogen constituents and other substances in the blood may occur with roentgen-ray treatment, the authors made a chemical study of the blood of certain patients treated in the routine way with high-voltage roentgen rays in the hope of demonstrating changes which might explain roentgen-ray sickness. The urea nitrogen, the total non-protein nitrogen,

the uric acid, the creatinin, and the sugar in the blood were determined according to the Folin and Wu method, the carbon-dioxide combining power of the blood plasma by the Van Slyke method, and the hydrogen-ion concentration of the whole defibrinated blood by the gas-chain method. Blood was taken from the arm vein before treatment, one to two hours after treatment, and again after about twenty-four hours. The blood samples were drawn into 20- to 25-cm. defibrinating tubes containing glass beads, in such a way that all of the air was displaced, and the blood in the closed tubes was defibrinated by shaking. The hydrogen-ion determinations were made in a McClendon electrode vessel, the transfer of blood into the vessel being completed without exposure to air.

The results in eight of the fourteen cases studied are given in a table. The results in the others were essentially the same.

These examinations demonstrated no striking or consistent alteration in the urea nitrogen, the total non-protein nitrogen, the uric acid, the creatinin, or the sugar concentration in the blood following treatment with the roentgen ray. They showed, however, a disturbance of the acid-base equilibrium, which is manifested immediately after treatment by an increase in the hydrogen-ion concentration and sometimes by a slight lowering of the alkali reserve. After twenty-four hours these relationships are reversed, the hydrogen-ion concentration being decreased and the alkali reserve increased. The latter observation agrees with the results obtained by Hussey in rabbits. The mechanism concerned is probably like that of other physiological reactions in which the acid-base equilibrium of the body is disturbed and a transient acidosis is followed by an over-compensating alkali response (alkalosis). In the authors' opinion the cause of the sickness following roentgen-ray treatment may be this disturbance of the acid-base equilibrium or perhaps some as yet unknown factors associated with it.

ADOLPH HARTUNG, M.D.

RADIUM

Turner, D.: The Use of Radium in the Treatment of Disease. *Brit. M. J.*, 1923, i, 464.

The principal conditions in which radium has been found beneficial at the Edinburgh Royal Infirmary are malignant disease, exophthalmic goiter, splenomedullary leukæmia, Hodgkin's disease, keloids, and nævi. The author cites a case of malignant disease confirmed by operation and microscopic study which has remained cured for more than seven years. The patient was a woman 49 years of age who had had a sarcoma for four years and had been subjected to four operations. She was admitted to the Infirmary by Miles on July 15, 1915. As Miles did not consider the case surgical, a dose of 4,180 mgm.-hrs. of radium was given by external and internal application, and in November, 1915, the dose was repeated externally only. The growth

diminished markedly. At the time the patient entered the hospital, it was a large nodular mass adherent to the left maxilla, projecting into the suborbital region, and interfering with vision, whereas in February it was movable and considerably smaller. The pathologic diagnosis made following its removal was spindle-cell sarcoma. After the operation a prophylactic dose of 4,120 mgm.-hrs. of radium was given. In January, 1923, the attending physician wrote that the patient was well and without any trace of recurrence.

Of malignant affections, rodent ulcer, epithelioma, lymphosarcoma, spindle-cell sarcoma, malignant disease of the cervix, and sarcoma of the nasal passages, and of non-malignant conditions, exophthalmic goiter, early keloids, and certain nævi are very amenable to radium treatment and sometimes may be actually cured by it. Conditions which can be ameliorated but rarely cured include carcinoma, lymphadenoma, and splenomedullary leukæmia.

Small rodent ulcers not affecting the mucous membrane or bone are easily cured with from 500 to 800 mgm.-hrs. of radium filtered through 1.5 mm. of silver. Those located where the alæ nasæ join the cheeks, and those of, or near, the ear are refractory. Small epitheliomata of the lip are very amenable to treatment. Involvement of the floor of the mouth, the tongue, or the fauces is difficult to benefit materially with radium.

Lymphosarcomata are the most susceptible to radium of all new growths, but while they disappear rapidly they tend to recur and form metastases.

In malignant disease of the external genitals the prognosis of radium treatment is usually unfavorable as recurrence is the rule. The best results are obtained in early malignancy of the cervix. From 6,000 to 10,000 mgm.-hrs. should be given.

The extent of the beneficial effect of the radium is an important question. In postmortem examinations of cervixes treated with radium Bumm found that the cancer cells were destroyed only for a distance of 3 cm. from the radiating source. It is suggested that cells beyond this distance may be rendered inert, that is, their power to proliferate may be destroyed. From experiments on mice, Wassermann concluded that the rays do not kill the cancer cells but merely destroy their proliferating power.

In exophthalmic goiter radiation has been found consistently useful. The author has treated 200 cases with beneficial effect on the general condition and special symptoms. From 300 to 500 mgm.-hrs. of radium radiation screened to prevent injury to the skin should be given over both lobes, the isthmus, and the thymus.

Recurrent scirrhus nodules, even those adherent to the bone, disappear but recur. Carcinoma of the rectum is refractory. In Hodgkin's disease amelioration may be obtained by applying radium over the glands and embedding it. In splenomedullary leukæmia the application of radium over the spleen will reduce the splenic enlargement and the white

blood cell count and greatly improve the general condition. Recurrence, which will develop in a few months, will again yield to treatment, but each recurrence yields less readily and eventually the patient succumbs.

In the treatment of exophthalmic goiter and nævi in children, the advantages of radium as compared with the X-ray include: (1) absolutely constant dosage, (2) greater penetration, and (3) quicker effect.

ALOYSIUS J. LARKIN, M.D.

Aikins, W. H. B.: Radium and Surgery. *Internat. J. Surg.*, 1923, xxxvi, 189.

Radium is the best single agent for the treatment of epithelioma of the skin without glandular involvement. The prognosis is less favorable in these cases when cartilage or bone is involved. In cases of epithelioma of the lip the results of radium treatment are very gratifying when there is no metastasis in the glands. Because of the tendency to metastasis in such cases the submental and submaxillary regions should be heavily irradiated.

In cases of rodent ulcers radium is decidedly preferable to surgery. Mouth cases require the co-operation of the radiologist and surgeon as radium alone does not give the best results. In general, the malignant tissue should be removed by surgery and the area then heavily irradiated.

The treatment of non-malignant conditions of the skin should be undertaken by the radiologist with great care, but the results given by radium are usually preferable to those of operation. The use of radium for the treatment of keloids cannot be too strongly urged. Angiomata, warts, and moles yield well to radium. Radium is also valuable for lupus erythematosus, psoriasis, eczema, and tuberculous ulcers.

Sarcomata are difficult to handle at best. Radium is satisfactory in the treatment of skin sarcomata, angiosarcoma, sarcoma of the conjunctiva, and epulis. Its results in lymphosarcoma are uncertain. The author asks for careful consideration of its use for bone sarcoma and cites cases in which a long-standing cure was obtained by this means when radical surgery had been urged.

For malignant breast conditions surgery is preferable to radium, but the author urges pre-operative irradiation of the lymphatics and states that after operation the operative area, the axilla, and the entire lymphatic area should be rayed as soon as possible and each six weeks thereafter. Recurrent nodules and chronic mastitis yield well to radium.

In cases of uterine fibroids radium is of undoubted value and should always be used in uncomplicated cases when the woman is over 40 years of age and the fibroid is smaller than a five months' pregnancy. In the cases of younger women and in cases of fibroids larger than a five months' pregnancy it is contra-indicated. It is contra-indicated also for subserous and submucous fibroids and in cases with pelvic infection or inflammation.

Radium is specific in menorrhagia and metrorrhagia due to benign conditions. In malignancy of the fundus of the uterus hysterectomy should be performed. In inoperable cases radium should be used for palliation. There is considerable diversity of opinion as to the best procedure in inoperable and borderline cases of cervical cancer. The author advises radium in borderline cases but does not express an opinion regarding operable cases.

Rectal carcinoma may be treated by operation with postoperative irradiation. Radium is used successfully for bladder tumors, especially papillomata. The hypertrophied prostate shows marked retrogression under the action of radium rays. With regard to cancer of the prostate the relative value of operation and radium is still undetermined. In cases of toxic and exophthalmic goiter, radium is preferable to surgery. In Hodgkin's disease it is very beneficial. Burnham reports permanent cures. In myelogenous leukaemia radium holds the disease in check and renders the patient much more comfortable. The author urges the use of radium also for the treatment of tuberculous adenitis.

ALOYSIUS J. LARKIN, M.D.

MISCELLANEOUS

Reh, H.: Further Indications for Intensive Heliotherapy (Weitere Indikationen zur Hoehenson-therapie). *Strahlentherapie*, 1922, xiv, 715.

Several cases of sciatica and acute neuralgia were subjected to intensive heliotherapy. The first treatment lasted for three minutes and the others for five, eight, and twelve minutes. In the majority of the cases the result was good.

The advantages of heliotherapy are that absolute immobilization of the limb is not necessary, the patient is not obliged to stop work, and the administration of salicylates is rendered unnecessary.

The author interprets neuralgia as an infection caused by bacteria already present in the body. Chilling of the body plays a part in its etiology by creating an area of lessened resistance. A similar etiology explains a series of diseases which are manifested by rheumatic pain occurring particularly under the influence of changes in the weather, months and years after an injury. This theory led the author to subject to heliotherapy cases of contusion, joint effusions, luxations, and lacerations in which the condition was not chronic. In these cases also the results were good. Diseases of the joint capsules, ligaments, muscles, and tendons were cured completely in a short time and did not recur. Diseases of the synovia associated with only slight changes of the joint surfaces healed well and without recurrence after eight irradiations. In cases in which destruction of joint surfaces was advanced, only alleviation of pain was obtained.

After the first irradiations the pain was alleviated or ceased altogether. After from four to eight irradiations the disease was generally completely

cured. The author speaks of a "pain dose" and a "curative dose," the latter amounting to three or four times the former.

HAUMANN (Z).

Kolischer, G., and Katz, H.: Surgical Diathermy in Its Relation to Radiotherapy. *J. Radiol.*, 1923, iv, 76.

The author gives a brief description of surgical diathermy and compares its technical and clinical advantages with those of the Paquelin cautery, the soldering iron, and the galvanocautery. The indications for surgical diathermy expanded with development of the technique and improvement in the results. Soon the fact became apparent that electrocoagulation of malignant tumors should be done in conjunction with radiotherapy as the therapeutic results were better if the raying was applied to hyperæmized structures. A favorite method of producing hyperæmia is the employment of "medical diathermy" which attracts the blood to the structures by heating them moderately but thoroughly with the high-frequency current.

A series of vesical and uterine cancers demonstrated that surgical diathermy is the most efficient method of improving the healing effect of radiotherapy. After disagreeable experiences with total coagulation of the tumor mass in cases of extensive uterine, vesical, and prostatic cancer, only limited coagulation was done and this was followed up by raying either with radio-active substances or with the roentgen tube. In the course of further observations it was noticed that raying applied soon after electrocoagulation seemed to give better results than radiotherapy administered some time later.

It therefore has become routine to coagulate malignant tumors only to a limited extent, and to administer the therapeutic rays within forty-eight hours. In this way very satisfactory results have

been obtained as even in apparently hopeless conditions a clinical cure has been effected. The term "clinical cure" is chosen for these cases because the case of uterine cancer treated earliest was treated only five years ago and the case of vesical cancer treated earliest was treated only three years ago.

Investigation of the immediate results of surgical diathermy demonstrated that beyond the zone of necrosis and sealing of the lymphatics it creates a zone of pronounced reaction, an area of aseptic inflammation characterized by the appearance of numerous round cells, leucocytes, and fibroblasts. All these are cells of high vitalistic function. It was found also that the cells composing the fibrous tissue become energized, this being evident from the fact that they accept vital staining. It is fair to assume, therefore, that cancer cells lying in this perithermic zone also become energized and that under this increased vital potency they may produce materials which, if brought into the circulation, may stimulate the endocrine glands to the production of defensive and protective ferments. These biological considerations, together with the clinical observations, suggest that only the decayed and decaying malignant cells should be destroyed by surgical diathermy, the malignant cells which are still at the peak of their periodicity of life being left to the influence of radiotherapy.

The conclusions drawn are summarized as follows: Surgical diathermy is a potent factor enhancing the efficiency of radiotherapy.

Electrocoagulation and raying seem to furnish the possibilities of a true chemotherapy of malignant tumors.

Raying must be administered while the perithermic zone shows pronounced reaction.

ADOLPH HARTUNG, M.D.

MISCELLANEOUS

CLINICAL ENTITIES—GENERAL PHYSIOLOGICAL CONDITIONS

Dubreuilh, W.: The Treatment of Leprosy (Traitement de la lèpre). *J. de méd. de Bordeaux*, 1923, xcv, 151.

We know that leprosy is contagious but not how the contagion is carried. Inoculations have been negative, and in spite of the research of Ehlers, Marchoux, and Bourret, no intermediate host for the transmission of the disease has been found. In Norway, following isolation of those affected by the disease, the number of lepers fell from 2,858 in 1856 to 180 in 1919. Ambulatory cases are carefully watched in order that they may not spread the disease.

In Hawaii every leper is sent to the hospital at Kalihi where he is treated, apparently cured, and then freed on condition that he will return at regular intervals for examination. Progressing cases are sent to the leper's colony at Molokai where they are given work and the usual distractions of village life. Wives and husbands are permitted to live together, but when children are born in the colony they are taken away as soon as possible and raised elsewhere. Leprosy is not necessarily fatal; even advanced cases may become cured. Such cures are usually spontaneous.

Foremost among the agents which have been used in medical treatment are vaccines and sera. Scholtz and Klingmuller excised leprous lesions, expressed pus from them, and inoculated this pus into those suffering from the disease. Wooley sterilizes this pus first. From leprous tissue which has been dried, triturated with sand, filtered, and sterilized an emulsion has been made for hypodermic injection. Williams, in 1920, claimed one cure from such injections, but Castellani and Little stated that the patient was not cured and that the method had failed in their hands fifteen years previously.

The bacillus of leprosy has been sought but cultures from an acid-fast bacillus sometimes found in the tissues have failed to give a cure. Rost's "leproline" is the glycerine extract of such a culture. Deycke's "nastine" is an ether extract. Both of these have failed, as have tuberculin, horse serum, snake venom, mercury, carbolic acid, arsenobenzol, and potassium iodide. Amino-arsenophenol has given some promise of success. In the Orient, chaulmoogra oil, a soft, yellowish solid, has been used as a cure for leprosy for several centuries. The dose tolerated is variable, ranging from 1 to 200 drops. The purified oil may be used for subcutaneous or intramuscular injection. It has also been given intravenously, but the danger of pulmonary fat embolism must be considered. Especially dangerous are in-

jections of mixtures of the oil and ether. Ethyl-ether extracts of chaulmoogra acid are now considered best. These are injected into the gluteal muscles once a week, the dose being gradually increased from 1 to 5 c. cm., and the treatment continued for months or years, even after the cure seems complete. The area injected is painful for two or three days.

KELLOGG SPEED, M.D.

Westmann, S.: Diabetic Gangrene and Its Treatment (Die diabetische Gangraen und ihre Behandlung). *Ztschr. f. aenstl. Fortbild.*, 1923, xx, 137.

After it was decided that in cases of associated gangrene and diabetes, the diabetes was the primary factor, the question arose as to how gangrene developed in the absence of a skin lesion and without the entrance of pyogenic bacteria into the blood. Whether it develops as the result of faulty diffusion between the tissues and the blood or whether it is due to arterial thrombosis (most of the subjects being old persons with arteriosclerosis) has not yet been determined.

In light cases of diabetic gangrene good results may be obtained by diet and the delay of other treatment until demarcation occurs. If the patient is already septicemic little hope remains. Because of the better results which were obtained from wide opening of diabetic carbuncles more active treatment is now recommended for diabetic gangrene of the lower extremities. The site of operation depends upon the state of the arteries. If the foot arteries are still palpable, incisions extending to the sound tissue and excision of the gangrenous tissue may be sufficient. Otherwise amputation is indicated. Its site depends on the extension of the gangrene and the patency of the arteries above.

The prognosis is unfavorable when inflammation extends along the veins and lymphatics of the thigh, and when acetonuria and coma are present, but even under such conditions, strict diet—starvation treatment especially—and the administration of large quantities of alkali by mouth, by rectum, and intravenously in conjunction with surgery may be beneficial. Two such cases are reported. RIESS (Z).

Brown, W. H., and Pearce, L.: Studies Based on a Malignant Tumor of the Rabbit. I. The Spontaneous Tumor and Associated Abnormalities. *J. Exper. Med.*, 1923, xxxvii, 601

The following is a summary of the most important findings made by the authors in a study of the development of a malignant tumor at the site of a primary syphilitic lesion in the scrotum of a rabbit about four years after inoculation:

1. A mild but persistent syphilitic infection with an occasional relapse and the eventual development

of chronic inflammatory lesions in the skin associated with atypical epithelial proliferation.

2. The occurrence, at about the same time, of extensive degenerative changes in the dermis accompanied by an atypical growth of hair follicles with the production of diffuse and nodular areas of thickening and induration.

3. The development of a growth in the skin of the left scrotum which recurred after removal, spread diffusely over adjacent parts of the skin, and metastasized to the regional lymph nodes and internal organs.

4. The transplantation of the growth to other rabbits by intratesticular inoculation and the successful propagation of the growth over a period of nearly two years (twenty generations).

5. The development of a cachexia and of pressure phenomena from metastases involving the cervical and lumbar regions of the spinal column, which eventually led to the death of the animal.

6. The discovery, postmortem, of an extensive leucoplakia of the tongue and buccal mucosa, chronic inflammatory lesions in the cesophagus with atypical epithelial proliferation, and a nodular growth in the left testicle differing in character from that in the scrotum.

7. The presence of extensive degenerative changes in the vascular system, degeneration of the parenchymatous organs, atrophy of the thymus and lymphoid system associated with chronic lymphadenitis, atrophy, degeneration, and necrosis of the suprarenals, and atrophy and hyperplasia of the thyroid with chronic thyroiditis.

The authors reach the conclusion that the growth in the scrotum was a neoplasm of epithelial origin composed of cells allied to those found in the bulb and root sheath of the hair.

GEORGE E. BEILBY, M.D.

Sugiura, K., and Benedict, S. R.: The Influence of Inorganic Salts upon Tumor Growth in Albino Rats. *J. Cancer Research*, 1922, vii, 329.

The authors studied the influence of thirty-two inorganic salts on the Flexner-Jobling rat carcinoma. The salts were given orally.

Copper sulphate, arsenic trioxide, potassium carbonate, and calcium chloride had a retarding influence upon the growth of the tumor, but this was not marked. Copper sulphate, the most effective agent, appeared to have an immunizing action.

Tellurium nitrate and selenic acid were found to have a very marked toxic effect upon rats, but no influence whatever upon the proliferating power of the tumor cells.

Magnesium carbonate and magnesium chloride had a slight accelerating influence upon the tumor growth.

EMIL C. ROBITSHEK, M.D.

Wood, F. C.: Recent Cancer Therapy. *Canadian M. Ass., J.*, 1923, xliii, 152.

The greatly increased interest in the treatment of cancer is due not entirely to the fact that the record-

ed frequency of the disease shows a marked increase. The dramatic circumstances of the discovery of radium and the extraordinary phenomena which accompany its biological action on the tissues have made the subject of interest to the commercial dealer and the newspapers who feature all the spectacular results and fail to publish the fatalities.

The radium enthusiasm has now about run its course. The price has fallen more than a third, primarily because of a buyers' strike. Physicians do not care to invest a large sum of money in a substance of such limited capacity. The dermatologist, however, will always have need of a moderate quantity of radium to treat semi-benign superficial tumors of the basal-cell type, and the gynecologist will also require it to treat inoperable carcinoma of the cervix. We should not allow the high optimism to be replaced by an extreme pessimism for, although radium may not cure many cancers, it is a valuable adjunct to surgery and a useful palliative in inoperable cancer.

The waning of enthusiasm for radium therapy has been followed by great interest in the so-called deep X-ray generated by machines delivering currents in excess of 200,000 volts. This also is of value but does not cure the deeper primary growths. Publicity has resulted in a very unfortunate situation as persons with operable growths often insist that radium or X-ray treatment be given, and many are now refusing to submit to surgery even when told that the results of radiation are far less certain than those of complete removal.

While radium may be used as a palliative measure in certain inoperable cancers, it should never be employed extensively in cases in which tumors involve blood vessels and vital organs and there is advanced cachexia; in these it will hasten death. Only very small doses may be given to relieve pain and improve the mental state.

Cancer of the stomach is the most unsatisfactory field for radiation. The author believes that in a borderline case gastro-enterostomy is far better than radiation. The close proximity of important organs renders effective raying impossible and therefore any radiation only hastens death.

In cancer of the breast the best treatment is the most extensive operation possible followed by very heavy raying given for a year or two at increasing intervals. The author has never seen a skin recurrence after such treatment. When the sternum or ribs are involved the problem is difficult. Mediastinal metastases are incurable.

Cases of bladder and prostate carcinoma are inoperable or borderline cases. If the surgeon is extremely skillful he may be able to cure 30 per cent of them. In the others, heavy radiation with the X-ray gives some relief. If there is obstruction a suprapubic cystostomy should be done, as much of the tumor removed as possible, and radium needles inserted into the base. In certain cases of carcinoma of the prostate without obstruction repeated radiation without opening of the bladder may give palliation.

Borderline and inoperable cases of cancer of the oral cavity are best treated with radium needles. In operable cases the primary growth and the submental and cervical lymph nodes should be removed. Many inoperable cases have been treated with an overdose of radium or X-ray. It is better to give a dose only sufficient to cause shrinkage and then to remove the cervical lymph nodes.

In bone sarcomata the pathologist has thus far been unable to determine the degree of malignancy of the different types of growths and until this is determined there will be much uncertainty. If these cases cannot be cured by surgery they cannot be cured by radiation, for osteosarcomata and chondrosarcomata are so highly resistant to radiation that they are as often stimulated as inhibited by large quantities of inserted radium or intense high-voltage X-ray treatment.

In pre-operative raying of operable cases the operation must be done within forty-eight hours after the raying, and the skin over the radiated area must be excised.

Pigmented moles should never be treated with radium, the X-ray, caustics, freezing agents, or the cautery, but should be widely excised.

In carcinoma of the cervix of the uterus radiation may well compete with surgery. Astonishing palliative effects are obtained, and a few advanced cases have been free from recurrence for four or five years after radium treatment. Only one large dose should be given. Carcinoma of the body of the uterus should always be treated by hysterectomy. The tumors are of low-grade malignancy, forming metastases late, and the results of operation are extremely good.

The only other condition in which radium can compete with surgery is the basal-cell tumor of the skin. Such tumors yield to erythema doses and most of them can be cured by a single treatment with either the X-ray or radium. Recurrences, however, are very resistant to this treatment.

In summarizing the author makes the following statements:

Operate upon all operable malignant growths. An inoperable carcinoma should be treated with radium if it is small and fairly well localized, but if it is extensive, it should be treated with the X-ray. Even if radium and the X-ray never effected a cure their use would be justifiable on account of the palliation they often give, which exceeds that obtained by any other known method. PAUL W. SWEET, M.D.

Semprún: The Future Surgery of Cancer (Le futura cirugía del cáncer). *Rev. españ. de cirug.*, 1922, iv, 478.

A study of the cancer cell shows that it is characterized by a high content of glycogen. Cancer can be treated in the same way as rabies without the discovery of the true nature of the virus. Semprún found that, *in vitro*, a basic quinine salt to which eosin is added is inert toward a virulent emulsion of cancerous tissue but active when it has been exposed for two hours to the radiations of a mercury quartz lamp. If a cancerous emulsion or serum to which has been added quinine-eosin solution that has not been exposed to the mercury quartz rays is injected into animals, positive results are obtained in 48 per cent, but when the quinine solution is exposed to the rays the positive results after injection are reduced to from 22 to 26 per cent. Semprún discusses the causes of this immunity and the prophylactic value of serum therapy in certain clinical cases.

With regard to the surgical treatment of cancer Semprún states that before operation the patient should be subjected to a preliminary treatment with injections of radiated serum until there is improvement in his general condition, and that the instruments and suture materials used at operation should also have been exposed to the rays of the mercury quartz lamp. After completion of the operation the operative field should be exposed for fifteen minutes to direct radiations of the mercury lamp placed at a distance of 40 cm. and moved at intervals so that all parts will be well irradiated. After this exposure the wound may be sutured. W. A. BRENNAN.

BIBLIOGRAPHY of CURRENT LITERATURE

NOTE.—THE BOLD FACE FIGURES IN BRACKETS AT THE RIGHT OF A REFERENCE INDICATE THE PAGE OF THIS ISSUE ON WHICH AN ABSTRACT OF THE ARTICLE REFERRED TO MAY BE FOUND.

SURGERY OF THE HEAD AND NECK

Head

The treatment of cranial injuries. D. W. BULLUCK, E. S. BULLUCK, and R. H. DAVIS. *South. M. & S.*, 1923, lxxxv, 316.

The diagnosis and treatment of fractures of the base of the skull: thirty-one cases. G. FERRY. *Rev. de chir.*, 1923, xlii, 117. [309]

Syphilitic osteitis of the cranium. C. LENORMAT. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 792.

Subperiosteal-temporal abscess without suppuration. F. SCHOUSBOE. *Arch. internat. de laryngol.*, etc., *Par.*, 1923, xxix, 484.

Sarcoma of the cranium. G. L. HARTMANN-KEPPEL. *Bull. et mém. Soc. anat. de Par.*, 1923, xciii, 54.

Phlebothrombosis of the intracranial sinuses. C. C. CHARLTON. *Ann. Otol., Rhinol. & Laryngol.*, 1923, xxxii, 485.

Sinus thrombosis. H. F. OHRT. *J. Michigan State M. Soc.*, 1923, xxii, 276.

Sinus thrombosis, facial paralysis on the opposite side, double choked disk: recovery. W. C. BOWERS. *Laryngoscope*, 1923, xxxiii, 460.

A case of sinus thrombosis with meningeal symptoms. A. N. SCHILLER. *Laryngoscope*, 1923, xxxiii, 463.

Sinus thrombosis following pneumonia in an adult. E. W. HURST. *Brit. M. J.*, i, 929.

Recurrent unilateral luxation of the lower jaw following alcohol injection for trigeminal neuralgia; recovery after resection of the meniscus. V. COMBIER and J. MURARD. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 689.

Pathogenic origin of tumors of the jaw. DELATOR and BERCHER. *Presse méd.*, *Par.*, 1923, xxxi, 539.

Tumors of the jaw from the standpoint of the rhinologist. J. D. WHITHAM. *Ann. Otol., Rhinol. & Laryngol.*, 1923, xxxii, 474.

Hæmorrhagic angiosarcoma of the upper jaw. H. J. BANKS-DAVIS. *Proc. Roy. Soc. Med.*, *Lond.*, 1923, xvi, Sect. *Laryngol.*, 49.

Symmetrical dentigerous cysts of the inferior maxilla. A. RENDU and C. DUNET. *Lyon chir.*, 1923, xx, 222.

Simple cyst of the mandible. C. R. MODIE. *Internat. J. Orthodont., Oral Surg. & Radiography*, 1923, ix, 466.

Unilocular adamantine cyst of the ascending ramus of the mandible. P. SANTY and C. DUNET. *Lyon chir.*, 1923, xx, 89.

Mixed submaxillary tumor. H. MONDOR and L. AUROUSSEAU. *Bull. et mém. Soc. anat. de Par.*, 1923, xciii, 364.

Plastic repair of the face and limbs. J. J. M. SHAW. *Edinburgh M. J.*, 1923, n.s. xxx, Tr. *Med.-Chir. Soc. Edinburgh*, 110.

Plastic surgery of the face. S. GELBER. *Internat. J. Surg.*, 1923, xxxvi, 256.

Parotitis with chronic retention of saliva; Leriche's operation. G. LECLERC. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 732.

Salivary calculus. S. C. HAYS. *J. South Carolina M. Ass.*, 1923, xix, 519.

Mikulicz's disease. E. I. BARTLETT. *Surg. Clin. N. Am.*, 1923, iii, 823.

Eye

The relations between the eye and ear. J. VAN DER HOEVE. *Ann. Otol., Rhinol. & Laryngol.*, 1923, xxxii, 571.

The determination of the static position of the eyes. E. A. CARRASCO. *Rev. méd. d. Rosario*, 1923, xiii, 129.

Miners' nystagmus. A. S. PERCIVAL. *Brit. M. J.*, 1923, i, 757.

Industrial eye injuries. F. ALLPORT. *N. York M. J. & Med. Rec.*, 1923, cxvii, 733.

An unusual foreign body in the eye. W. D. DRAKE. *Illinois M. J.*, 1923, xliii, 468.

The electromagnet in the extraction of metallic particles from the eye. A. VAN LINT. *Bruxelles-méd.*, 1923, iii, 726.

Some congenital anomalies of the eye and their confusion with acquired conditions. I. C. MANN. *Lancet*, 1923, cciv, 743. [309]

Cycloplegics in refraction work. A. E. BULSON, JR. *J. Indiana State M. Ass.*, 1923, xvi, 198.

The intensity of the stimulus and the size and shape of the color fields. C. E. FERREE and G. RAND. *Am. J. Ophth.*, 1923, 3s. vi, 453.

The third dimension in monocular vision. C. H. BRYANT. *Brit. J. Ophth.*, 1923, vii, 271.

The method of coincidences in the examination and interpretation of binocular diplopia. MARQUEZ. *J. de méd. de Bordeaux*, 1923, xcv, 405.

Visual changes due to sinusitis—report of two cases. W. R. PARKER. *J. Michigan State M. Soc.*, 1923, xxi, 177. [310]

Lupus vulgaris with ocular extension. W. S. FRANKLIN and F. C. CORDES. *Am. J. Ophth.*, 1923, 3s. vi, 573.

Ionization in ocular therapeutics. G. BOURGUIGNON, A. CANTONNET, and M. JOLTOIS. *Presse méd.*, *Par.*, 1923, xxxi, 517.

The new antiluetic preparations of bismuth in ocular therapy. M. M. AMAT. *Siglo med.*, 1923, lxx, 528, 552.

Chalazion technique. H. GIFFORD. *Am. J. Ophth.*, 1923, 3s. vi, 487.

Convergent squint in children. J. W. LEECH. *Rhode Island M. J.*, 1923, vi, 90.

Fundamental considerations in the correction of squint. A. WHITMIRE. *Arch. Ophth.*, 1923, lii, 242. [311]

A watertight suture in trephining. R. F. MOORE. *Brit. J. Ophth.*, 1923, vii, 257.

A cavernous angioma of the orbit. G. MANCILLA. *Rev. méd. de Sevilla*, 1923, xlii, 26. [311]

Tuberculoma of the orbital cavity. Literature. D. ROY. *Arch. Ophthalm.*, 1923, lii, 147. [311]

A papillary epithelial tumor of the orbit. C. C. SAELHOF. *Am. J. Ophthalm.*, 1923, 38, vi, 473.

Endothelioma of the orbit. F. A. WILLIAMSON-NOBLE. *Brit. J. Ophthalm.*, 1923, vii, 222. [311]

A case of ivory-like osteoma originating from the os planum and invading the orbit. H. H. VAIL. *Laryngoscope*, 1923, xxxiii, 428.

Ethmoido-orbital metastasis of a silent hypernephroma. VAN DUYSE and MARBAIX. *Arch. internat. de laryngol.*, etc., *Par.*, 1923, xxix, 55.

Method of action of subconjunctival injections. A. VAN LINT. *Bruxelles-méd.*, 1923, iii, 827.

The treatment of conical cornea. C. KILICK. *Brit. J. Ophthalm.*, 1923, vii, 264. [312]

A review of keratoplastic surgery and some experiments in keratoplasty. A. E. FORSTER. *Am. J. Ophthalm.*, 1923, 38, vi, 366. [312]

Interstitial keratitis due to focal infection. C. P. JONES. *Am. J. Ophthalm.*, 1923, 38, vi, 461. [312]

Primary ring sarcoma of the iris. T. M. LI. *Am. J. Ophthalm.*, 1923, 38, vi, 545. [312]

Spontaneous rupture of the eyeball. W. W. GILFILLAN. *Am. J. Ophthalm.*, 1923, 38, vi, 488.

Rupture of the choroid. H. D. LAMB. *Am. J. Ophthalm.*, 1923, 38, vi, 449.

Steel splinter penetrating the lens without cataract. G. H. CROSS. *Am. J. Ophthalm.*, 1923, 38, vi, 487.

Anterior subluxation of the lens without trauma. M. C. LOREE. *Am. J. Ophthalm.*, 1923, 38, vi, 488.

Pseudoglioma, vascular tunic of the lens. S. R. GIFFORD and J. S. LATTA. *Am. J. Ophthalm.*, 1923, 38, vi, 565.

Blue cataract. R. P. RATNAKER. *Brit. J. Ophthalm.*, 1923, vii, 269.

Clinical observations following the use of cyanide of mercury in lenticular opacities. J. H. BURLISON. *South. M. J.*, 1923, xvi, 486.

Cataract extraction and complications. W. F. HUGHES. *J. Indiana State M. Ass.*, 1923, xvi, 79. [312]

The treatment of early opacities in the senile lens, with demonstration of six cases. W. B. I. POLLACK. *Glasgow M. J.*, 1923, n.s. xvii, 32. [313]

On macular perception in advanced cataract. G. YOUNG. *Brit. J. Ophthalm.*, 1923, vii, 167. [313]

Papillitis with focal infection. L. F. APPLEMAN. *Am. J. Ophthalm.*, 1923, 38, vi, 563.

Retinitis associated with disease of the cardiovascular system. W. L. BENEDICT. *N. York M. J. & Med. Rec.*, 1923, cxvii, 741.

Discussion on the significance of the vascular and other changes in the retina in arteriosclerosis and renal disease. G. N. PITT, H. B. SHAW, R. F. MOORE, P. BARDSLEY, P. ADAMS, and others. *Proc. Roy. Soc. Med., Lond.*, 1923, xvi, Sect. Med. & Ophthalm., 1. [313]

Familial retino-cerebral degeneration. W. H. NARDIN and R. S. CUNNINGHAM. *Am. J. Ophthalm.*, 1923, 38, vi, 476.

A neuro-epithelioma or glioma of the retina. J. A. MORGAN. *Am. J. Ophthalm.*, 1923, 38, vi, 484.

Optic neuritis of sphenoidal sinus origin: operation; cure. ST. C. THOMSON. *Brit. M. J.*, 1923, i, 925.

Monocular optic neuritis. L. BUCHANAN. *Brit. J. Ophthalm.*, 1923, vii, 170. [314]

Herpes zoster ophthalmicus. S. LODGE and W. O. LODGE. *Brit. M. J.*, 1923, i, 1084.

Two cases of tumor of the optic nerve. H. NEAME. *Brit. J. Ophthalm.*, 1923, vii, 209. [314]

Ear

The otolaryngological clinics of Vienna of today. A. I. STOTTER. *Ohio State M. J.*, 1923, xix, 414.

Prosthesis after removal of the auricle for carcinoma. R. A. FENTON and I. M. LUPTON. *Northwest Med.*, 1923, xxii, 212.

Impaired hearing. B. H. SHUSTER. *Therap. Gaz.*, 1923, 38, xxxix, 389.

The effect of pressure changes in the external auditory canal on the acuity of hearing. A. G. POHLMAN and F. W. KRANZ. *Ann. Otol., Rhinol. & Laryngol.*, 1923, xxxii, 545. [314]

A note on boiler-makers' deafness. R. LAKE. *J. Laryngol. & Otol.*, 1923, xxxviii, 323.

A new ear and nasal syringe. W. R. MASSON. *J. Am. M. Ass.*, 1923, lxxx, 1616.

Two cases of tympanic perisclerosis. S. CITELLI. *Arch. internat. de laryngol.*, etc., *Par.*, 1923, xxix, 199.

The structure and function of the crista ampularis. G. E. SHAMBAUGH. *Ann. Otol., Rhinol. & Laryngol.*, 1923, xxxi, 443. [315]

The practical diagnostic value of tests of the vestibular mechanism. F. L. DENNIS. *Ann. Otol., Rhinol. & Laryngol.*, 1923, xxxii, 160. [315]

Some remarks on nystagmus. G. W. MACKENZIE. *Ann. Otol., Rhinol. & Laryngol.*, 1923, xxxii, 427. [315]

Contribution to the theory of the rapid phase of vestibular nystagmus. G. V. T. BORRIES. *Arch. internat. de laryngol.*, etc., *Par.*, 1923, xxix, 292.

The diagnosis and treatment of otitis media. A. G. WENZELL. *U. S. Naval M. Bull.*, 1923, xviii, 698.

Bilateral otitis and suppurative thyroiditis in the course of a general streptococcal infection. RICHOU. *Arch. internat. de laryngol.*, etc., *Par.*, 1923, xxix, 202.

Acute otitis media with jugular bulb thrombosis. E. WATSON-WILLIAMS. *Brit. M. J.*, 1923, i, 1014.

Otitis media, mastoiditis, and disease of the nasal accessory sinuses as causative factors in malnutrition in children. T. H. ODENEAL. *Ann. Otol., Rhinol. & Laryngol.*, 1923, xxxii, 561.

Chronic suppurative otitis media. H. E. BOZER. *Ann. Otol., Rhinol. & Laryngol.*, 1923, xxxii, 277. [315]

The treatment of otitis media with tuberculin. G. THOMSEN VON COLDITZ. *Ann. Otol., Rhinol. & Laryngol.*, 1923, xxxii, 149. [316]

The treatment of acute otitis media in children. T. B. LAYTON. *Brit. J. Child. Dis.*, 1923, xx, 65.

The radical operation in chronic suppurative otitis media: a consideration of the technique. The use of the primary skin graft and the result of the operation with particular reference to the function of the organ. E. B. DENCH. *Laryngoscope*, 1923, xxxiii, 241. [317]

Mastoid disease with lateral sinus infection. H. M. JAY. *Med. J. Australia*, 1923, i, 638.

Giant-cell sarcoma of the auditory canal complicating mastoiditis. W. HERBERT. *Laryngoscope*, 1923, xxxiii, 414.

Methods for promoting rapid healing in the simple mastoid operation. L. L. HENNINGER. *J. Iowa State M. Soc.*, 1923, xiii, 224.

Observations on the blood-clot dressing in mastoidectomy. G. E. DAVIS. *Laryngoscope*, 1923, xxxiii, 442.

Nose

Depressed nasal deformities. A comparison of the prosthetic values of paraffin, bone, cartilage, and celluloid, with report of cases corrected with celluloid implants by the author's method. J. D. LEWIS. *Ann. Otol., Rhinol. & Laryngol.*, 1923, xxxii, 321.

The correction of external deformities of the nose. S. ISRAEL. *Ann. Otol., Rhinol. & Laryngol.*, 1923, xxxii, 594.

Nasal disfigurement and its correction. D. GUTHRIE. *J. Laryngol. & Otol.*, 1923, xxxviii, 300.

Acute abscess of the nasal septum. S. M. MORWITZ. *Illinois M. J.*, 1923, xliii, 463.

Idiopathic perforation of the nasal septum; autoplasty with a pedunculated flap of mucous membrane; cure. J. N. ROY. *Ann. Otol., Rhinol. & Laryngol.*, 1923, xxxii, 554.

Submucous resection—complications and after-results. N. S. WEINBERGER. *Ann. Otol., Rhinol. & Laryngol.*, 1923, xxxii, 387.

Compression of the lower turbinate in high malformations of the nasal septum. G. DIDIER. *Arch. internat. de laryngol.*, etc., Par., 1923, xxix, 461.

An operation for atrophic rhinitis. J. ADAM. *Brit. M. J.*, 1923, i, 1013.

A specimen from a case of multiple papillomata of the nose. H. J. BANKS-DAVIS. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Laryngol., 46.

A case of sarcoma of the nose cured by radium. E. M. WOODMAN. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Laryngol., 49.

Tumor of the nasopharynx. F. C. ORMEROD. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Laryngol., 56.

A case of rhinosporidiosis. J. H. ASHWORTH and A. L. TURNER. *J. Laryngol. & Otol.*, 1923, xxxviii, 285.

Notes on the treatment by electrolysis of some affections of the nose and ear. A. R. FRIEL. *Lancet*, 1923, cciv, 1305.

Headaches of sinus origin. E. D. ALLGAIER. *Internat. J. Surg.*, 1923, xxxvi, 257.

The nasal accessory sinuses and optic nerve disturbances. J. E. DIEHL. *Virginia M. Month.*, 1923, i, 155.

Pulmonary symptoms incident to infection of the accessory sinuses of the nose. R. T. MCINTIRE. *U. S. Naval M. Bull.*, 1923, xviii, 688.

The bacteriology of infected nasal accessory sinuses. W. E. CARY and E. MCGINNIS. *Laryngoscope*, 1923, xxxiii, 424.

Sinusitis from swimming. R. A. FENTON. *Ann. Otol., Rhinol. & Laryngol.*, 1923, xxxii, 526. [317]

Infection of the accessory sinuses in children, with report of cases. E. A. LOOPER. *Ann. Otol., Rhinol. & Laryngol.*, 1923, xxxii, 417.

Complications of paranasal sinus disease in infants and young children. L. W. DEAN. *Ann. Otol., Rhinol. & Laryngol.*, 1923, xxxii, 285. [318]

A severe case of acute pansinusitis. S. THOMSON. *Brit. M. J.*, 1923, i, 924.

Stereoscopy of the accessory sinuses. G. W. GRIER. *Am. J. Roentgenol.*, 1923, x, 497.

The treatment of acute sinus infections. L. M. HURD. *Ann. Otol., Rhinol. & Laryngol.*, 1923, xxxii, 394.

Acute frontal sinusitis with varied bacterial flora associated with fusospirilla. P. CASTEX. *Arch. internat. de laryngol.*, etc., Par., 1923, xxix, 333.

Ethmoiditis. W. L. MASON. *Virginia M. Month.*, 1923, i, 196.

Ethmoidal disease and systemic conditions. H. HAYS. *Med. Times*, 1923, li, 150.

Ethmoiditis: diagnosis and treatment. E. G. GILL. *Virginia M. Month.*, 1923, i, 193.

Practical consideration of ethmosphenoidal sinusitis. J. H. HARTER. *Laryngoscope*, 1923, xxxiii, 417. [318]

Nasal or sphenopalatine neurosis. M. B. BOEBINGER. *Te as State J. M.*, 1923, xix, 35. [318]

A case of sarcoma of the sphenoid. J. H. SPENCER and H. GALL. *J. Roy. Army Med. Corps, Lond.*, 1923, xl, 454.

An improved antrum-exploring trocar and cannula. H. M. WHARRY. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Laryngol., 53.

A case of maxillary sinusitis occurring in an infant. J. PIQUET. *Arch. internat. de laryngol.*, etc., Par., 1923, xxix, 482.

A case of empyema and polypi of the maxillary sinus and the sliding-flap operation of antrum closure. N. L. POLINGER. *Dental Cosmos*, 1923, lxxv, 585.

Some further observations on the etiology and treatment of maxillary sinusitis. H. V. DUTROW. *Ann. Otol., Rhinol. & Laryngol.*, 1923, xxxii, 398.

Mouth

Dental relations of the eye, ear, nose, and throat. W. H. HASKIN. *Ann. Otol., Rhinol. & Laryngol.*, 1923, xxxii, 497.

Discussion on infections of the teeth and gums in their relationship to the nose, throat, and ear. P. WATSON-WILLIAMS, J. DUNDAS-GRANT, H. TILLEY, and others. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Odont., 35.

Some diseases of the mouth, jaws, and face surgically treated. M. N. FEDERSPIEL. *J. Lancet*, 1923, xliii, 267.

Co-operation between the medical and the dental profession in combating disease of the buccal cavity. J. B. DEEVER. *Dental Cosmos*, 1923, lxxv, 606.

Cancer of the mouth and jaws. V. P. BLAIR and M. J. MOSKOWITZ. *Internat. J. Orthodont, Oral Surg., & Radiography*, 1923, ix, 218. [319]

The surgery of carcinomata of the mucous lining of the mouth. L. HEIDRICH. *Beitr. z. klin. Chir.*, 1923, cxxviii, 310. [319]

Ulcerative stomatitis and its treatment by the intravenous injection of arsenic. E. A. MORGAN. *Am. J. Dis. Child.*, 1923, xxv, 354. [320]

Arsphenamin treatment of spirochetic gingivitis. J. A. KOLMER. *Am. J. Clin. Med.*, 1923, xxx, 243. [320]

Surgical treatment of gingivitis. L. MONIER. *Presse méd.*, Par., 1923, xxxi, 532.

Carcinoma of the floor of the mouth. D. QUICK. *Am. J. Roentgenol.*, 1923, x, 461.

A case of congenital hemimacroglossia with disturbance of the locomotor apparatus of the side opposite the lingual lesion. J. N. ROY. *Ann. Otol., Rhinol. & Laryngol.*, 1923, xxxii, 519.

Parenchymatous glossitis without pus. KENDIRJY and LAPOUGE. *Arch. internat. de laryngol.*, etc., Par., 1923, xxix, 326.

A case of acute suppurative glossitis. CUVILLIER and QUIRIN. *Arch. internat. de laryngol.*, etc., Par., 1923, xxix, 330.

Phlegmon of the tongue. E. DELANNOY. *Arch. internat. de laryngol.*, etc., Par., 1923, xxix, 418.

Neoplasm of the tongue treated simultaneously by surgical methods and radium. BÉRARD. *Lyon chir.*, 1923, xx, 117.

Tuberculous ulcer of the dorsum of the tongue. W. HOWARTH. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Laryngol., 50.

Cancer of the tongue, lips, and cheek. V. P. BLAIR and M. J. MOSKOWITZ. *Internat. J. Orthodont, Oral Surg. & Radiography*, 1923, ix, 468.

Cancer of the tongue invading the floor of the mouth and lower lip without adenopathy. G. L. HARTMANN-KEPPEL. *Bull. et mém. Soc. anat. de Par.*, 1923, xciii, 60.

Cancer of the tongue treated by a combination of surgical methods and radiotherapy. BÉRARD. *Lyon chir.*, 1923, xx, 271.

Clonic spasm of the palate. D. MCKENZIE. *Proc. Roy. Soc. Med., Lond.*, 1923, xvi, Sect. Laryngol., 57.

A case of ulceration of the palate and fauces. T. J. FAULDER. *Proc. Roy. Soc. Med., Lond.*, 1923, xvi, Sect. Laryngol., 53.

The use of the delayed flap in secondary operations on the palate and antrum. G. B. NEW. *Minnesota Med.*, 1923, vi, 214. [320]

Throat

Notes on the practice of peroral endoscopy. W. B. SMITH. *Surg. Clin. N. Am.*, 1923, iii, 787.

Throat and ear symptoms in rheumatic cases. D. MACFARLAN. *Laryngoscope*, 1923, xxxiii, 436.

Rhinopharyngitides; their rôle in contagion and the development of certain infectious diseases. J. CARLES. *J. de méd. de Bordeaux*, 1923, xcv, 111. [321]

Tuberculosis of the upper air passages. L. B. PORTER. *Rhode Island M. J.*, 1923, vi, 83.

Swelling on the posterior wall of the pharynx. F. SPICER. *Proc. Roy. Soc. Med., Lond.*, 1923, xvi, Sect. Laryngol., 57.

Tuberculoma of the pharynx. N. PATTERSON and G. C. CATHCART. *Proc. Roy. Soc. Med., Lond.*, 1923, xvi, Sect. Laryngol., 51.

Extensive lupus of the palate, pharynx, and larynx. W. HOWARTH. *Proc. Roy. Soc. Med., Lond.*, 1923, xvi, Sect. Laryngol., 50.

Two cases of pharyngeal sporotrichosis. E. ESCOMEL. *Arch. internat. de laryngol., etc., Par.*, 1923, xxix, 12.

The function of the tonsils and its relation to tonsillectomy. S. M. BOURACK. *Arch. internat. de laryngol., etc., Par.*, 1923, xxix, 297.

Unhealthy tonsils associated with cervical adenitis. W. G. HOWARTH and S. R. GLOYNE. *Lancet*, 1923, cciv, 1202.

The conservative treatment of diseased and enlarged tonsils. J. E. G. WADDINGTON. *Am. J. Clin. Med.*, 1923, xxx, 406.

X-ray and radium treatment of infected tonsils and adenoids. E. U. WALLERSTEIN. *Virginia M. Month.*, 1923, i, 177.

The electrocoagulation method of treating diseased tonsils. F. J. NOVAK, JR. *J. Am. M. Ass.*, 1923, lxxx, 1842.

Tonsillectomy: electric coagulation and desiccation. A. M. MACWHINNIE. *N. York M. J. & Med. Rec.*, 1923, cxvii, 731.

The surgical control of bleeding following tonsillectomy. J. J. RAINEY. *Laryngoscope*, 1923, xxxiii, 446.

Sepsis following tonsillectomy. E. W. PETERSON. *Ann. Surg.*, 1923, lxxvii, 760. [322]

Cancer of the right tonsil co-existing with linitis plastica. C. MONCANY and L. CORNIL. *Bull. et mém. Soc. anat. de Par.*, 1923, xciii, 180.

Lymphosarcoma of the tonsil, the thyroid, and both testicles. H. L. ROCHER and C. LASSERRE. *J. de méd. de Bordeaux*, 1923, xcv, 154. [322]

An X-ray study in intubation. E. GIDDINGS and D. E. EHRLICH. *Laryngoscope*, 1923, xxxiii, 401. [322]

Laryngeal complications and influenza. V. SEGURA. *Arch. internat. de laryngol., etc., Par.*, 1923, xxix, 257.

Metastatic laryngeal arthritis. S. O. FIELDS. *Ann. Otol., Rhinol. & Laryngol.*, 1923, xxxii, 588.

Laryngostomy for complete subglottic stenosis. W. HOWARTH. *Proc. Roy. Soc. Med., Lond.*, 1923, xvi, Sect. Laryngol., 48.

Aphonia from paralysis of the left vocal cord. N. LUKIN. *J. Am. M. Ass.*, 1923, lxxx, 1846.

Ventriculochordectomy for double abductor paralysis. W. HOWARTH. *Proc. Roy. Soc. Med., Lond.*, 1923, xvi, Sect. Laryngol., 47.

A case of outgrowth from the ventricle in a subject of pulmonary tuberculosis. J. DUNDAS-GRANT. *Proc. Roy. Soc. Med., Lond.*, 1923, xvi, Sect. Laryngol., 55.

Laryngeal growths removed by indirect laryngoscopy. A. WYLIE. *Internat. J. Surg.*, 1923, xxxvi, 244. [323]

A specimen from the postmortem room of a large cyst of the orifice of the larynx arising from the aryteno-epiglottidean fold. E. D. D. DAVIS. *Proc. Roy. Soc. Med., Lond.*, 1923, xvi, Sect. Laryngol., 54.

Multiple papillomata of the larynx. H. J. BANKS-DAVIS. *Proc. Roy. Soc. Med., Lond.*, 1923, xvi, Sect. Laryngol., 45.

Tumor of the larynx; ? malignant. W. H. JEWELL. *Proc. Roy. Soc. Med., Lond.*, 1923, xvi, Sect. Laryngol., 57.

Complete laryngectomy for malignant disease. W. HOWARTH. *Proc. Roy. Soc. Med., Lond.*, 1923, xvi, Sect. Laryngol., 49.

A laryngeal case for diagnosis. H. B. JONES. *Proc. Roy. Soc. Med., Lond.*, 1923, xvi, Sect. Laryngol., 51.

Presentation of laryngectomized patients. HINOJAR. *Arch. de méd., cirug. y especial.*, 1923, xi, an. de la acad. méd.-quirúrg., 370.

Neck

Certain consideration of thyroid disease from the standpoint of etiology, diagnosis, and clinical management. F. SMITHIES. *Ann. Clin. Med.*, 1923, i, 381.

Chronic thyroiditis. W. S. THOMAS and C. W. WEBB. *Clifton Med. Bull.*, Clifton Springs, N. Y., 1923, ix, 1. [323]

The vital capacity in hyperthyroidism with a study of the influence of posture: a preliminary report. I. M. RABINOWITZ. *Arch. Int. Med.*, 1923, xxxi, 910.

Hyperthyroidism: a new clinical sign. H. H. LISSNER. *Endocrinology*, 1923, vii, 431.

Adrenalin as a vital factor in hyperthyroidism. D. J. HARRIES. *Brit. M. J.*, 1923, i, 1015.

Hyperthyroidism as a cause of severe uterine hæmorrhage following minor vaginal operations. A. W. BOURNE. *Lancet*, 1923, xciv, 1210.

A review of the treatment of hyperthyroidism by all methods, with a summary of the authors' experience with roentgen therapy. T. A. GROOVER, A. C. CHRISTIE, and E. A. MERRITT. *Am. J. Roentgenol.*, 1923, x, 385. [323]

The surgical treatment of hyperthyroidism. G. W. CRILE. *South. M. J.*, 1923, xvi, 459.

The relation between thyrotoxicosis and tonsillar infection. L. E. BROWN. *Ann. Otol., Rhinol. & Laryngol.*, 1923, xxxii, 367.

The clinical value of the Goetsch test. J. M. READ and R. S. HIATT. *Med. Clin. N. Am.*, 1923, vi, 1527. [324]

The influence of the thyroid gland on the response to adrenalin. D. M. LYON. *Brit. M. J.*, 1923, i, 966.

A permissible breakfast prior to basal metabolism measurements. C. G. BENEDICT and F. G. BENEDICT. *Boston M. & S. J.*, 1923, clxxxviii, 849.

Basal conditions in the estimation and interpretation of the basal metabolic rate. B. HOLCOMB. *Northwest Med.*, 1923, xxii, 203.

Statistical discussion on goiter. M. STOSS. *Deutsche Ztschr. f. Chir.*, 1922, clxxvi, 325. [324]

The pathologic physiology of the different varieties of goiter and their influence on the biology. F. DE QUERVAIN. *Schweiz. med. Wchnschr.*, 1923, liii, 10. [324]

A clinical classification of goiter. J. A. BUCHANAN. *Colorado Med.*, 1923, xx, 160.

The symptomatology, diagnosis, and classification of goiter. A. S. JACKSON and R. H. JACKSON. *Wisconsin M. J.*, 1923, xxi, 13.

The parasitic etiology of endemic goiter. C. WEGELIN. *Mitt. a. d. Grenzgeb. d. Med. u. Chir.*, 1923, xxxvi, 134. [325]

Goiter and focal infections. F. W. LANGSTROTH. *Internat. J. Surg.*, 1923, xxxvi, 248.

The prevention and treatment of simple goiter. D. MARINE. *Atlantic M. J.*, 1923, xxvi, 437. [325]

X-ray and radium treatment of goiter. G. W. GRIER. *Atlantic M. J.*, 1923, xxvi, 516. [326]

Discussion of symposium on goiter. S. J. WATERWORTH, L. G. COLE, C. H. FRAZIER, and others. *Atlantic M. J.*, 1923, xxvi, 519. [326]

Factors of safety in thyroid surgery. W. BARTLETT. *Ann. Surg.*, 1923, lxxvii, 685.

The surgical treatment of goiter. H. L. FOSS. *Atlantic M. J.*, 1923, xxvi, 508. [327]

A technique of thyroidectomy. F. H. LAHEY. *Surg., Gynec. & Obst.*, 1923, xxxvi, 825.

Protection of the parathyroid glands. F. DE QERVAIN. *Beitr. z. klin. Chir.*, 1923, cxxviii, 197. [327]

The question of drainage after thyroidectomy. J. UJHELY. *Arch. f. klin. Chir.*, 1922, cxii, 522. [328]

An analysis of my end-results in thyroid surgery. C. A. PORTER. *Surg., Gynec. & Obst.*, 1923, xxxvi, 621. [328]

Acetonuria following thyroid operations. R. S. HUBBARD and C. W. WEBB. *Clifton Med. Bull.*, Clifton Springs, N. Y., 1923, ix, 85.

The mortality rate following operations on the thyroid gland. C. H. MAYO and W. M. BOOTHBY. *J. Am. M. Ass.*, 1923, lxxx, 891. [328]

The prevention of exophthalmic goiter. I. BRAM. *Endocrinology*, 1923, vii, 415.

Signs and symptoms in exophthalmic goiter. C. F. MCCLINTIC. *J. Michigan State M. Soc.*, 1923, xxii, 277.

Studies of Graves' syndrome and the involuntary nervous system. II. The clinical manifestations of disturbances of the involuntary nervous system (autonomic imbalance). L. KESSEL and H. T. HYMAN. *Am. J. M. Sc.*, 1923, xlkv, 513. [329]

Does diet influence the course of the basal metabolic rate in exophthalmic goiter? H. G. WALLER and M. N. WOODWELL. *J. Michigan State M. Soc.*, 1923, xxii, 275.

Cardiac disorders accompanying exophthalmic goiter. E. P. BOAS. *J. Am. M. Ass.*, 1923, lxxx, 1683.

Exophthalmic goiter following varicella and mastoiditis in a child with status thymolymphaticus. H. WHEELON. *Endocrinology*, 1923, vii, 437.

X-ray treatment in Basedow's disease. L. EDLING. *Fortschr. a. d. Geb. d. Roentgenstrahlen*, 1923, xxx, 117. [330]

The roentgen-ray treatment of Basedow's disease. C. FRIED. *Deutsche Ztschr. f. Chir.*, 1922, clxxvi, 254. [330]

The effect of heat upon operations for exophthalmic goiter. A. J. WALTON. *Brit. M. J.*, 1923, i, 1045.

SURGERY OF THE NERVOUS SYSTEM

Brain and Its Coverings; Cranial Nerves

The management of acute brain injuries. G. E. NEUHAUS. *Nebraska State M. J.*, 1923, viii, 207.

The old head injury case. J. C. MICHAEL. *J. Am. M. Ass.*, 1923, lxxx, 1047. [331]

Anatomo-clinical considerations on intracranial and traumatic subdural hæmorrhage in the adult. P. WERTHEIMER. *Rev. de chir., Par.*, 1923, xlii, 150.

Encephalitis following interference with dead teeth: report of two cases. R. BURNS, JR. *J. Am. M. Ass.*, 1923, lxxx, 1591.

Encephalitis lethargica; difficulties in the differential diagnosis and the late sequelæ. G. W. HALL. *Wisconsin M. J.*, 1923, xxii, 1.

A case of encephalitis lethargica recognized by a change in behavior. J. H. GELLATLY. *Lancet*, 1923, cciv, 1213.

High-grade choked disks in epidemic encephalitis. W. G. SPILLER. *J. Am. M. Ass.*, 1923, lxxx, 1843.

The treatment of epidemic encephalitis by intraspinal injections of casein. ROCH. *Presse méd., Par.*, 1923, xxxi, 496.

Specific serum treatment of epidemic (lethargic) encephalitis: further results. E. C. ROSENOW. *J. Am. M. Ass.*, 1923, lxxx, 1583. [331]

Brain abscess of the temporosphenoidal lobe complicating acute mastoiditis: operation and recovery. E. G. GILL. *South. M. J.*, 1923, xvi, 483.

A cerebellar abscess secondary to an acute benign suppurative otitis. NATCHO ST. ARIFEW. *Arch. internat. de laryngol., etc., Par.*, 1923, xxix, 52.

A case of hydatid cerebral cyst. J. BERTRAND and G. MEDACOVITCH. *Bull. et mém. Soc. anat. de Par.*, 1923, xciii, 169.

A case of cerebral cyst in an infant. H. G. JACOBI. *Am. J. Dis. Child.*, 1923, xxv, 435.

A case of cerebral abscess in a child. J. P. PARKINSON and L. R. BROSTER. *Lancet*, 1923, cciv, 1107.

Primary gliomata of the chiasm and optic nerves in their intracranial portion. P. MARTIN and H. CUSHING. *Arch. Ophth.*, 1923, lii, 209.

The choroid plexuses and ventricles of the brain as a secreting organ. J. BLAND-SUTTON. *Lancet*, 1923, cciv, 1143.

Resection of the choroid plexus in severe unilateral internal hydrocephalus. C. HINRICHSMEYER. *Arch. f. klin. Chir.*, 1923, cxii, 742. [332]

Two cases of acquired hydrocephalus. T. FRACASSI. *Rev. méd. d. Rosario*, 1923, xiii, 113.

A method for the localization of brain tumors in comatose patients; the determination of a communication between the cerebral ventricles and the estimation of their position and size without the injection of air (ventricular estimation). W. E. DANDY. *Surg., Gynec. & Obst.*, 1923, xxxvi, 641.

Calcification in brain tumors. R. R. NEWELL. *Surg. Clin. N. Am.*, 1923, iii, 775.

The operative removal of brain tumors. C. A. ELSBERG. *Ann. Surg.*, 1923, lxxvii, 769.

A tumor removed from the brain of a child aged 12 years. H. S. SOUTTAR. *Proc. Roy. Soc. Med., Lond.*, 1923, xvi, Clin. Sect., 27.

Hyperplasia of the hypophysis cerebri? J. D. CUMMINS. *Brit. J. Ophth.*, 1923, vii, 260.

Gummata of the hypophysis. E. COHN. *Arch. f. path. Anat.*, 1923, ccxl, 452. [333]

Routes of approach to the hypophyseal region. R. LERICHE and P. WERTHEIMER. *J. de chir.*, 1923, xxi, 543.

The pineal gland, especially in relation to the problem of its supposed significance in sexual development. K. H. KRABBE. *Endocrinology*, 1923, vii, 379.

Glioma of the optic thalamus. L. A. LEVISON and F. W. ALTER. *Am. J. Ophth.*, 1923, 38, vi, 468. [333]

The frontal method of Schloffer-Duret without exenteration of the orbit: the possibility of relative exploration of the base of the brain. P. BASTIANELLI. *Arch. ital. di chir.*, 1923, vii, 140.

Internal hæmorrhagic pachymeningitis in infancy: report of five cases. C. W. BURHANS and H. J. GERSTENBERGER. *J. Am. M. Ass.*, 1923, lxxx, 604. [333]

Acute meningitis of otitic origin. DUTHELLET DE LAMOTHE. *Arch. internat. de laryngol.*, etc., Par., 1923, xxix, 48.

Otitic meningitis. G. J. JENKINS. *J. Laryngol. & Otol.*, 1923, xxxviii, 304.

Tuberculous meningitis. D. PATERSON. *Practitioner*, 1923, cx, 431.

Pneumococcus cerebrospinal meningitis: recovery following serotherapy. J. HALLÉ. *Bull. et mém. Soc. méd. d. hôp. de Par.*, 1923, 38, xxxix, 757.

Suppurative pneumococcus meningitis secondary to otitis; recovery. A. NETTER and E. CÉZARI. *Bull. et mém. Soc. méd. d. hôp. de Par.*, 1923, 38, xxxix, 763.

The operative treatment of suppurative meningitis. W. P. EAGLETON. *Atlantic M. J.*, 1923, xxvi, 575.

Usual causes of intracranial pressure. C. E. HILL. *Canadian Pract.*, 1923, xlviii, 213.

Transorbital puncture of the gasserian ganglion. E. AIEVOLI. *Riforma med.*, 1923, xxxix, 467.

Spinal Cord and Its Coverings

Laminectomy in the paraplegias of Pott's disease. N. SHARPE. *Am. J. Surg.*, 1923, xxxvii, 142.

Acute ascending meningomyelitis possibly resulting from arsphenamine therapy. H. R. VIETS. *Boston M. & S. J.*, 1923, clxxxviii, 895. [334]

Peripheral Nerves

Some peripheral nerve problems. D. LEWIS. *Boston M. & S. J.*, 1923, clxxxviii, 975.

Artificial nerve branches for the innervation of paralyzed muscles. B. STOOKEY. *Arch. Surg.*, 1923, vi, 731. [334]

The Stoffel operation for spastic paralysis. C. H. HEYMAN. *Surg., Gynec. & Obst.*, 1923, xxxvi, 613. [335]

Double union of one nerve trunk to another. P. MANASSE. *Arch. f. klin. Chir.*, 1922, cxx, 665.

Gunshot injury involving the ulnar nerve. A. BAMBERGER. *Illinois M. J.*, 1923, xliii, 453.

Late paralysis of the ulnar nerve. P. GUIBAL. *Arch. franco-belges de chir.*, 1923, xxvi, 207.

Two cases of anomaly of the external popliteal nerve. G. FLORENCE. *Bull. et mém. Soc. anat. de Par.*, 1923, xciii, 318.

The surgical treatment of sciatica. HEILE. *Deutsche Ztschr. f. Chir.*, 1922, clxxiv, 10.

Sympathetic Nerves

Some considerations on the pathology of the sympathetic nerve trunk. C. ABADIE. *Presse méd.*, Par., 1923, xxxi, 510.

Surgical relations of the sympathetic nervous system. G. P. MULLER. *Ann. Surg.*, 1923, lxxvii, 641.

Cervical sympathectomy for angina pectoris. P. K. BROWN. *J. Am. M. Ass.*, 1923, lxxx, 1692.

A note on the treatment of chronic ulceration of the lower extremities. P. K. FORD. *Lancet*, 1923, cciv, 1005. [335]

Miscellaneous

Sugar findings in normal and pathological spinal fluids. A. G. KELLEY. *South. M. J.*, 1923, xvi, 407.

Spinal puncture as an aid to diagnosis and therapeutics. J. F. HERRICK. *J. Iowa State M. Soc.*, 1923, xiii, 226.

The X-ray in neurological diagnosis. H. W. CROUSE. *Am. J. Roentgenol.*, 1923, x, 437.

Different types of pain from medullary compression. J. A. BARRÈ. *Presse méd.*, Par., 1923, xxxi, 449.

SURGERY OF THE CHEST

Chest Wall and Breast

Polythelia. R. D. HOWAT. *Brit. M. J.*, 1923, i, 928.

Early and curable disease of the breast. G. L. CHEATLE. *Brit. M. J.*, 1923, i, 928.

Tuberculosis of the breast. D. C. ELKIN. *Ann. Surg.*, 1923, lxxvii, 661.

Tumors of the breast—innocent and malignant. A. PRIMROSE. *Ann. Surg.*, 1923, lxxvii, 668.

Cancer of the breast. C. ROWNTREE. *Brit. M. J.*, 1923, i, 747. [336]

Cancer of the female breast; factors influencing best surgical results. J. N. JACKSON. *J. Arkansas M. Soc.*, 1923, xx, 1.

A large sarcoma of the breast. C. LENORMANT and P. MOURE. *Bull. et mém. Soc. anat. de Par.*, 1923, xciii, 176.

Intrathoracic changes following roentgen treatment of breast carcinoma. T. A. GROOVER, A. C. CHRISTIE, and E. A. MERRITT. *Am. J. Roentgenol.*, 1923, x, 471.

Trachea, Lungs, and Pleura

Tracheal obstruction due to (?) arrest of development of the trachea. C. A. S. RIDOUT. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Laryngol., 58.

Mounted specimen showing two foreign bodies—one movable and the other fixed, in the trachea of a child aged 3 years. H. J. BANKS-DAVIS. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Laryngol., 55.

Mounted specimen showing a threepenny-piece impacted in a perforation between the œsophagus and trachea of a baby aged 3 months. H. J. BANKS-DAVIS. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Laryngol., 55.

Tracheotomy over the bronchoscope. E. HALPHEN and A. AUBIN. *Arch. internat. de laryngol.*, etc., Par., 1923, xxix, 452.

Some unappreciated findings in the lungs of normal children. C. R. AUSTRIAN and F. H. BAETJER. *Am. J. M. Sc.*, 1923, clxv, 831.

Pulmonary embolism following the filling of a fistula with Beck's bismuth paste. A. LEB. *Beitr. z. klin. Chir.*, 1923, cxxviii, 515. [336]

Acute œdema of the lungs. V. MOXEY. *Brit. M. J.*, 1923, i, 929.

A case of amœbiasis of the lung without abscess of the liver cured by emetin. RAMOND, DENOVELLE and LAUTMAN. *Bull. et mém. Soc. méd. d. hôp. de Par.*, 1923, 38, xxxix, 655.

Lung abscess. G. J. HEUER. *Minnesota Med.*, 1923, vi, 279. [336]

Pulmonary abscess following nose and throat surgery. J. PRENN. *Ann. Otol., Rhinol. & Laryngol.*, 1923, xxxii, 413.

A study of lung abscess by serial radiographic examination. L. R. SANTE. *J. Radiol.*, 1923, iv, 183. [337]

Pulmonary lip fistula. W. MEYER. *Ann. Surg.*, 1923, lxxvii, 777.

Injection of lipiodol in the treatment of bronchocutaneous fistula. TUFFIER. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 799.

The diagnosis and treatment of pulmonary conditions through the bronchoscope. *Ann. Otol., Rhinol. & Laryngol.*, 1923, xxxii, 437.

The surgical treatment of unilateral pulmonary tuberculosis. E. ARCHIBALD. *Ann. Surg.*, 1923, lxxvii, 652.

Two cases of primary cancer of the lung. G. TRIVIÑO and F. MÉNDEZ. *Med. Ibera*, 1923, vii, 341.

The pleuro-pulmonary reflex: its etiology, prevention, and treatment. B. P. STIVELMAN. *Am. J. M. Sc.*, 1923, clxv, 836.

Pleurisy and pseudo-pleurisy in infancy. M. GESTEIRA. *Bol. Acad. nac. de med., Rio de Janeiro*, 1923, xcv, 71.

Diaphragmatic pleurisy. H. B. WEISS. *J. Am. M. Ass.*, 1923, lxxx, 1664.

Paravertebral anaesthesia in acute suppurative pleurisy. I. SEFF. *J. Am. M. Ass.*, 1923, lxxx, 1612.

The composition of the gases in artificial pneumothorax. L. HILL and J. A. CAMPBELL. *Brit. M. J.*, 1923, i, 752.

Empyema, an analysis of 100 cases in relation to treatment. H. L. BEYE. *Minnesota Med.*, 1923, vi, 401. [338]

Empyema in the first two years of life, with a discussion of the value of immediate resection of rib. H. C. CAMERON and A. A. OSMAN. *Lancet*, 1923, cciv, 1097. [339]

Posterior gravity drainage in empyema: the strategic seat of election. J. O'CONOR. *Brit. M. J.*, 1923, i, 758.

Heart and Pericardium

Diseases of the pericardium. R. S. MORRIS and C. F. LITTLE. *Ohio State M. J.*, 1923, xix, 404.

Tuberculous pericarditis with large serous effusion; urgent pericardotomy without drainage. BOTREAU-ROUSSEL. *Bull. et mém. Soc. anat. de Par.*, 1923, xciii, 257.

Pericardiotomy for purulent pericarditis. C. GAMBERINI. *Arch. ital. di chir.*, 1923, vi, 619. [339]

Artificial pneumopericardium. R. W. A. SALMOND. *Arch. Radiol. & Electrotherapy*, 1923, xxviii, 20. [339]

A case of a bullet in the heart with recovery. F. C. SWEARINGEN. *Am. J. Roentgenol.*, 1923, x, 454.

Cardiotomy and valvulotomy for mitral stenosis; experimental observations and clinical notes concerning an operated case with recovery. S. A. LEVINE and E. C. CUTLER. *Boston M. & S. J.*, 1923, clxxxviii, 1023.

Oesophagus and Mediastinum

The treatment congenital atresia of the oesophagus. E. D. SMITH. *Am. J. Surg.*, 1923, xxxvii, 157.

Cicatricial stenosis of the oesophagus caused by commercial lye preparations. L. H. CLERF. *J. Am. M. Ass.*, 1923, lxxx, 1600.

Diverticula of the oesophagus. L. GERY. *Bull. et mém. Soc. anat. de Par.*, 1923, xciii, 105.

Traction-pulsion diverticulum of the oesophagus in a girl of 8 years. G. FERRY. *Bull. et mém. Soc. anat. de Par.*, 1923, xciii, 297.

Foreign bodies in the oesophagus. D. SANSON. *Brazil-med.*, 1923, xxxvii, 288.

A causative factor in cancer of the oesophagus. R. A. BULLRICH. *Semana méd.*, 1923, xxx, 683. [340]

Glandular epithelioma of the lower end of the oesophagus; death from perforation of the stomach. DELATER. *Bull. et mém. Soc. anat. de Par.*, 1923, xciii, 160.

Carcinoma of the oesophagus. J. M. MARCUS and E. A. ARONSON. *N. York M. J. & Med. Rec.*, 1923, cxvii, 675.

The treatment of carcinoma of the oesophagus by deep X-ray therapy. A. H. PIRIE. *Am. J. Roentgenol.*, 1923, x, 459.

Unexpected death, especially in children, with comments on status lymphaticus. E. GLYNN and R. C. DUN. *Lancet*, 1923, cciv, 1302.

Report of a case of status lymphaticus with autopsy findings. C. L. STONE. *Laryngoscope*, 1923, xxxiii, 426.

Thymus disease in children, with report of case. H. E. FLANSBURG. *Nebraska State M. J.*, 1923, viii, 211.

Primary carcinoma of the thymus. V. C. JACOBSON. *Arch. Int. Med.*, 1923, xxxi, 847.

The diagnosis and treatment of certain mediastinal tumors. W. S. LAWRENCE. *South. M. J.*, 1923, xvi, 441.

A case of mediastinal tumor. T. B. COOLEY. *Arch. Pediat.*, 1923, xl, 403.

Mediastinal growth with venous thrombosis. J. A. MACLAREN. *Brit. M. J.*, 1923, i, 1092.

Cervico-mediastinal lymphosarcoma. BLAMOUTIER and QUIGNON. *Bull. et mém. Soc. méd. d. hôp. de Par.*, 1923, 3s. xxxix, 512.

Miscellaneous

Intrathoracic development of a fibroma of costal origin. P. DUVAL. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 706.

Traumatic asphyxia. A. MONCRIEFF. *Lancet*, 1923, cciv, 1307.

Primary intrathoracic neoplasms. A. J. S. PINCHIN. *Practitioner*, 1923, cx, 422.

Observations of intrathoracic surgery in the free pleural cavity. J. LEVEUF. *Rev. de chir., Par.*, 1923, xlii, 319.

Recent phases of thoracic surgery. E. A. GRAHAM. *J. Am. M. Ass.*, 1923, lxxx, 1825.

Subphrenic abscess. G. PISANO. *Policlin., Rome*, 1923, xxx, sez. chir., 74. [340]

SURGERY OF THE ABDOMEN

Abdominal Wall and Peritoneum

A review of fifteen cases of umbilical hernia. R. CARNELL. *Policlin., Rome*, 1923, xxx, sez. prat., 649.

Postoperative ventral hernia. H. H. SEARLS. *Surg. Clin. N. Am.*, 1923, iii, 865.

A hernial tumor involving the colon and suppurating at its center. D'ALLAINES. *Bull. et mém. Soc. anat. de Par.*, 1923, xciii, 156.

Incarcerated hernia of the canal of Nuck. C. LICINI. *Policlin., Rome*, 1923, xxx, sez. prat., 667.

A case of appendicitis in a hernial sac. M. DELLAVALLE. *Policlin., Rome*, 1923, xxx, sez. prat., 665.

Vasolacunar femoral hernia. E. PALLESTRINI. *Policlin., Rome*, 1923, xxx, sez. prat., 656.

Strangulated obturator hernia co-existing with a reducible femoral hernia. GAUTHIER. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 682.

Strangulated appendicular femoral hernia. A. CATTERINA. Policlin., Rome, 1923, xxx, sez. prat., 664.

The treatment of gangrenous femoral hernia. A. BECKER. Deutsche Ztschr. f. Chir., 1922, clxxvi, 281. [341]

A case of Laugier's hernia treated by radical operation with twisting of the sac. S. BILE. Policlin., Rome, 1923, xxx, sez. prat., 661.

The etiology of indirect inguinal hernia. T. E. HAMMOND. Lancet, 1923, cciv, 1206.

A modified operation for the radical cure of inguinal hernia. J. O'CONOR. Med. Press, 1923, n.s. cxv, 455.

A modified inguinal hernioplasty. D. STETTEN. Ann. Surg., 1923, lxxviii, 48.

Two cases of colon-bacillus peritonitis. D. STAFFIERI. Rev. méd. d. Rosario, 1923, xiii, 121.

Biliary peritonitis without perforation. H. BURKHARDT. Beitr. z. klin. Chir., 1923, cxxviii, 209. [341]

On localized peritonitis due to intestinal perforation in paratyphoid fever: report of a case. A. E. M. WOOLF. Brit. J. Child. Dis., 1923, xx, 91.

Peritonitis in the course of typhoid fever. J. L. VERA. Rev. méd. d. Uruguay, 1923, xxi, 216.

Postoperative treatment of peritonitis. H. E. PFEIFFER. J. Iowa State M. Soc., 1923, xiii, 229.

Drainage of the peritoneal cavity. C. POWELL. Colorado Med., 1923, xx, 165.

A new method of preventing postoperative peritoneal adhesions. L. HERLITZKA. Riv. ginec., ostet., pediat., e med. gen., 1923, xviii, 61.

A study of urinary output and blood-pressure changes resulting in experimental ascites. J. M. THORINGTON and C. F. SCHMIDT. Am. J. M. Soc., 1923, clxv, 880.

Intra-abdominal torsion of the great omentum without hernia. D'ALLAINES and ROUFFIAC. Bull. et mém. Soc. anat. de Par., 1923, xciii, 327.

Sarcoma of the omentum. G. H. COPER. Ann. Surg., 1923, lxxvii, 721.

Mesenteric cysts. E. I. BARTLETT. Surg. Clin. N. Am., 1923, iii, 811.

A solid tumor of the mesentery: extirpation; cure. VITAL AZA. Prog. de la clin., Madrid, 1923, xxv, 321. [341]

Gastro-Intestinal Tract

Studies of the mechanism of movement of the mucous membrane of the digestive tract. G. FORSSELL. Am. J. Roentgenol., 1923, x, 87. [341]

Foreign bodies in the stomach removed by operation. A. G. BRAND. Brit. M. J., 1923, i, 1018.

Gastric analysis and the constancy of the percentile relationship among the titrable factors of the gastric secretion. B. S. LEVINE. J. Lab. & Clin. Med., 1923, viii, 612.

Fractional catheterization with different test breakfasts. HERNANDO, GRANDA, and TORRE. Arch. de med., cirug. y especial., 1923, xi, an. acad. méd.-quirúrg., 392.

The action of certain chemicals upon the secretion of gastric juice. T. HERNANDO. Med. Ibera, 1923, vii, 505.

Acute non-operative dilatation of the stomach. T. HERNANDO. J. de méd. de Bordeaux, 1923, xcv, 399.

Diverticulum of the stomach. C. OBERLING. Bull. et mém. Soc. anat. de Par., 1923, xciii, 204.

Congenital hypertrophic stenosis of the pylorus. A. ZENO and C. MUNIAGURRÍA. Rev. méd. d. Rosario, 1923, xiii, 89.

The diagnosis and treatment of pyloric stenosis. W. P. LUCAS. Med. Clin. N. Am., 1923, vi, 1393. [342]

Hyperesthenic dyspepsia and ulcer. ENRIQUEZ. Arch. de med., cirug. y especial., 1923, xi, 369.

The etiology of gastroduodenal ulcer. E. PALIER. N. York M. J. & Med. Rec., 1923, cxvii, 659.

Gastrojejunal and jejunal ulcer: the cause, diagnosis, treatment. J. H. WOOLSEY. Surg. Clin. N. Am., 1923, iii, 657.

Acute perforation of the stomach and duodenum, with a report of sixty cases. C. L. GIBSON. Am. J. M. Sc., 1923, clxv, 809.

Perforated ulcer of the stomach and duodenum. E. C. CUTLER and F. C. NEWTON. Boston M. & S. J., 1923, clxxxviii, 789. [343]

Three cases of perforation of the stomach by ulcer. CHARRIER. Bull. et mém. Soc. de chir. de Par., 1923, xlix, 494.

Two cases of perforation of the duodenum by ulcer. FERRARI. Bull. et mém. Soc. de chir. de Par., 1923, xlix, 494.

A perforated and sutured pyloric ulcer: stenosis of the pyloric canal. R. SOUPAULT. Bull. et mém. Soc. anat. de Par., 1923, xciii, 165.

Hour-glass contraction of the stomach. W. A. DOWNES. Surg. Clin. N. Am., 1923, iii, 343. [343]

The treatment of simple ulcers of the lesser curvature. CHARBONNEL. Arch. franco-belges de chir., 1923, xxvi, 321.

The results of the medical treatment of gastric and duodenal ulcer. N. A. NIELSEN. Acta med. Scand., 1923, lviii, 1. [343]

Operative indications in gastro-duodenal ulcers. E. ENRIQUEZ and P. CARRIE. Arch. franco-belges de chir., 1923, xxvi, 311.

The surgical treatment of gastric and duodenal ulcer. J. J. WELLS. N. York M. J. & Med. Rec., 1923, cxvii, 663.

Hemigastrectomy as a treatment of ulcer in bilocular stomach. GOULLIoud. Arch. franco-belges de chir., 1923, xxvi, 336.

Resection of the stomach for ulcer; immediate feeding with duodenal tube. H. FISCHER. Ann. Surg., 1923, lxxvii, 773.

Linitis plastica—with report of two cases. A. F. R. ANDRESEN. Am. J. M. Sc., 1923, clxv, 799.

Three cases of syphilis of the stomach. R. ALESSANDRI. Ann. ital. di chir., 1923, ii, 1. [344]

Epithelioma of the stomach invading the pancreas. E. C. PIETTE. Bull. et mém. Soc. anat. de Par., 1923, xciii, 375.

Primary sarcoma of the stomach and trauma. The traumatic genesis of tumors. G. PISTOCCHI. Policlin., Rome, 1923, xxx, sez. chir., 83. [344]

A new technique for gastrostomy. DELVAUX. Bull. et mém. Soc. de chir. de Par., 1923, xlix, 692.

Deflection of the biliary and pancreatic secretions by jejunojejunostomy as a complement of gastro-enterostomy or gastrectomy. L. CERF and N. PAULY. Bruxelles-méd., 1923, iii, 257. [345]

Pre-operative and postoperative treatment in operations on the stomach. V. PAUCHET. Arch. franco-belges de chir., 1923, xxvi, 369.

Surgical possibilities in traumatic rupture of the intestine. A. L. LOCKWOOD. Canadian M. Ass. J., 1923, xiii, 311. [345]

Four cases of Volvulus of the small intestine with observations on the etiology. F. J. TEES. Canadian M. Ass. J., 1923, xiii, 400.

Intestinal perforation complicating typhoid fever—a report of three cases with recovery. M. BEHREND. Therap. Gaz., 1923, 3s. xxxix, 400.

Upper intestinal tract obstruction. R. L. HADEN and T. G. ORR. J. Missouri State M. Ass., 1923, xx, 185.

Acute obstruction of the bowel. H. T. RIVERS. Kentucky M. J., 1923, xxi, 265.

- Acute intestinal obstruction, with special reference to paralytic ileus following abdominal operations. H. McKENNA. *J. Am. M. Ass.*, 1923, lxxx, 1666.
- The treatment of spastic constipation. C. D. AARON. *Am. J. M. Sc.*, 1923, clxv, 816.
- Combination ileus. K. SCHLAEPFER. *Ann. Surg.*, 1923, lxxvii, 594. [346]
- A case of chronic intestinal obstruction. D. D. PAULUS. *J. Oklahoma State M. Ass.*, 1923, xvi, 187.
- Lactic acid in the treatment of chronic enteritis. I. H. LLOYD-WILLIAMS. *Brit. M. J.*, 1923, i, 1053.
- The diagnosis and treatment of intestinal obstruction. A. MCGLENNAN. *Am. J. M. Sc.*, 1923, clxv, 822.
- The permeability of the intestinal mucosa to certain types of bacteria determined by cultures from the thoracic duct. C. S. WILLIAMSON and R. O. BROWN. *Am. J. M. Sc.*, 1923, clxv, 480. [347]
- The status of present-day methods of examination in the diagnosis of intestinal tuberculosis. W. S. LEMON. *Minnesota Med.*, 1923, vi, 300. [347]
- A contribution to the study of lipomata of the intestine. C. VACCARI. *Arch. ital. di chir.*, 1923, vi, 589.
- Carcinoma of the small bowel. M. M. PORTIS and S. A. PORTIS. *Am. J. Roentgenol.*, 1923, x, 419.
- A case of primary epithelioma of the small intestine. H. BÉNARD and A. BERGERET. *Bull. et mém. Soc. anat. de Par.*, 1923, xciii, 358.
- Primary epithelioma of the small intestine. R. LEROUX. *Bull. et mém. Soc. anat. de Par.*, 1923, xciii, 352.
- Resection of the intestine. E. S. ALLEN. *Kentucky M. J.*, 1923, xxi, 266.
- Closure of the ends of the intestine. CUNÉO. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 698.
- An instrument and method for aseptic anastomosis of the intestine. F. E. B. FOLEY. *Surg., Gynec. & Obst.*, 1923, xxxvi, 836.
- Duodenal motility. H. WHEELON. *N. York M. J. & Med. Rec.*, 1923, cxvii, 652.
- Biliary calculus causing acute intestinal obstruction. CAPETTE. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 741.
- A gall-stone obstructing the small bowel. A. WEEKS. *Surg. Clin. N. Am.*, 1923, iii, 677.
- Duodenal intestinal obstruction secondary to gastric polyp, and intussusception due to multiple teniae saginatae. J. W. SHUMAN and D. CRUIKSHANK. *N. York M. J. & Med. Rec.*, 1923, cxvii, 694. [348]
- Two cases of duodenal obstruction in infants treated by operation. R. C. JEWESBURY and M. PAGE. *Proc. Roy. Soc. Med., Lond.*, 1923, xvi, Sect. Dis. Child., 50.
- Some observations on duodenal alimentation. J. FRIEDENWALD and P. F. WIEST. *N. York M. J. & Med. Rec.*, 1923, cxvii, 655.
- Duodenal sounding. H. GAHLINGER. *Bruxelles-méd.*, 1923, iii, 706.
- The diagnosis of duodenal ulcer. F. W. FOXWORTHY. *J. Indiana State M. Ass.*, 1923, xvi, 192.
- Perforated duodenal ulcer in a child. W. A. DOWNES. *Ann. Surg.*, 1923, lxxvii, 756. [348]
- Eight observations of perforated duodenal gastric ulcers. C. GRODE. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 542.
- Resection of the duodenum; ulcer of the papilla. K. KOCH. *Rozhledy v. chir. a gynaek.*, 1923, ii, 157.
- Primary ulcer of the jejunum. H. FISCHER. *Ann. Surg.*, 1923, lxxvii, 775.
- Postoperative jejunal ulcer with simultaneous perforation into the abdominal wall and transverse colon. R. LÉVY. *Bull. et mém. Soc. anat. de Par.*, 1923, xciii, 183.
- A leiomyoma of the first portion of the jejunum. G. BRENDOLAN. *Policlin.*, Rome, 1923, xxx, sez. chir., 113. [348]
- Two cases of acute intussusception in children; resection; recovery. W. A. THOMPSON. *Brit. M. J.*, 1923, i, 971.
- Ileocolic intussusception caused by Meckel's diverticulum and simulating ectopic gestation. H. H. GREENWOOD. *Brit. M. J.*, 1923, i, 1016.
- Intussusception with Meckel's diverticulum. W. VICKERS. *Med. J. Australia*, 1923, i, 669.
- Carcinoma at the ileocaecal valve; capture of a loop of small intestine with obstruction; a problem of intestinal anastomosis. E. RIXFORD. *Surg. Clin. N. Am.*, 1923, iii, 589.
- Sliding herniae of the caecum and appendix in children. V. C. DAVID. *Ann. Surg.*, 1923, lxxvii, 438. [349]
- Diverticula of the appendix. ROUFFIAC. *Bull. et mém. Soc. anat. de Par.*, 1923, xciii, 330.
- Mucocele of the appendix. R. MORLOT and C. MATHIEU. *Bull. et mém. Soc. anat. de Par.*, 1923, xciii, 334.
- Incomplete intussusception of the appendix. H. BRIN and H. FRUCHAUD-BRIN. *Bull. et mém. Soc. anat. de Par.*, 1923, xciii, 243.
- The diagnosis of appendicitis. L. DROSIN. *N. York M. J. & Med. Rec.*, 1923, cxvii, 686.
- Nerve disturbances in the abdominal wall in appendicitis. B. SZERSYNSKI. *Polska gaz. lek.*, 1922, i, 816. [349]
- The value and limitations of the X-ray in the diagnosis of chronic appendicitis. L. LEVYN. *N. York M. J. & Med. Rec.*, 1923, cxvii, 688.
- The clinical importance of the chronic changes in the appendix which are discovered by the roentgen ray. F. W. WHITE. *Boston M. & S. J.*, 1923, clxxxviii, 587. [349]
- Movement to expose danger in appendicitis. C. J. H. AITKEN. *Practitioner*, 1923, cx, 457.
- Acute and chronic appendicitis. S. CARRO. *Clin. y lab.*, 1923, i, 533.
- Acute gangrenous or perforative and suppurative retrocaecal appendicitis. J. N. JACKSON. *South. M. J.*, 1923, xvi, 282. [350]
- The rôle of bacillus welchii in gangrenous appendicitis. J. E. JENNINGS. *N. York M. J. & Med. Rec.*, 1923, cxvii, 682.
- Acute appendicitis in children. T. H. KELLEY. *Illinois M. J.*, 1923, xliii, 454.
- Four rare forms of appendicitis. LE FILLIARTRE. *Bull. et mém. Soc. anat. de Par.*, 1923, xciii, 228.
- Appendicitis: a study in histologic physiology. O. C. GRUNER. *Practitioner*, 1923, cx, 442.
- Chronic appendicitis and appendectomy. E. ROUFFART. *Gynéc. et obst.*, 1923, vii, 115. [351]
- Stercoral fistula secondary to appendectomy; recovery after extraperitoneal operations. C. LENORMANT. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 736.
- Postoperative recurrent appendicitis. R. O'CALLAGHAN. *Canadian M. Ass. J.*, 1923, xiii, 434.
- Subhepatic abscess secondary to appendicitis. P. W. ASCHNER. *N. York M. J. & Med. Rec.*, 1923, cxvii, 679. [351]
- An adenomyoma involving the vermiform appendix. D. DOUGAL. *J. Obst. & Gynec. Brit. Emp.*, 1923, xxx, 224.
- An early benign adenoma of the appendix. L. A. EMGE and C. B. COWAN. *Surg. Clin. N. Am.*, 1923, iii, 765.
- Volvulus of the large intestine. A. H. SOUTHAM. *Brit. M. J.*, 1923, i, 1050.
- A case of megacolon in a child. F. PERRENOT. *Lyon chir.*, 1923, xx, 95.

A case of coeliac disease showing symptoms of megacolon, with autopsy. R. MILLER. *Brit. J. Child. Dis.*, 1923, xx, 88.

Infectious colitis. H. F. HEWES. *Boston M. & S. J.*, 1923, clxxxviii, 994.

The surgical treatment of ulcerative colitis. D. F. JONES. *Boston M. & S. J.*, 1923, clxxxviii, 999.

A specimen of a colon showing multiple perforation resulting from dysentery. P. COLE. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Surg., 67.

The treatment of a stercoral mucocutaneous fistula. TUFFIER. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 740.

Some cases of carcinoma of the colon treated by colectomy. SANTY. *Lyon chir.*, 1923, xx, 110.

The surgical physiology of the large intestine. C. LEFEBVRE. *Arch. franco-belges de chir.*, 1923, xxvi, 215.

Unilateral intestinal exclusion. G. E. MUENNICH. *Surg., Gynec. & Obst.*, 1923, xxxvi, 773.

Colostomy: a special technique. G. K. RHODES. *Surg. Clin. N. Am.*, 1923, iii, 857.

Involvement of the lymph glands in cancer of the cæcum. W. M. CRAIG and W. C. MACCARTY. *Ann. Surg.*, 1923, lxxvii, 698.

An instrumental aid to sigmoidoscopy. D. C. MCKENNEY. *N. York M. J. & Med. Rec.*, 1923, cxvii, 693.

Chronic sigmoiditis mistaken for an adnexal tumor; resection, end-to-end suture; recovery. L. MOREAU. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 742.

Simple ulcer of the sigmoid. RENAUD and D'ALLAINES. *Bull. et mém. Soc. anat. de Par.*, 1923, xciii, 67.

Cicatricial stenosis of the sigmoid. A. L. BLESHE. *J. Oklahoma State M. Ass.*, 1923, xvi, 186.

Blind end-to-end anastomosis of the sigmoid; a modified Halsted operation; presentation of a new instrument. C. Y. BIDGOOD. *Bull. Johns Hopkins Hosp.*, Balt., 1923, xxxiv, 197.

Hæmorrhoids—piles. C. J. DRUECK. *Internat. J. Surg.*, 1923, xxxvi, 260.

The treatment of hæmorrhoids by sclerosing injections. R. BENSANDE. *Bull. et mém. Soc. méd. d. hôp. de Par.*, 1923, 38, xxxix, 686.

Rectal papillomata in schistosoma hæmatobium infestations. H. C. SINDERSON and E. A. MILLS. *Brit. M. J.*, 1923, i, 968.

Ischiorectal abscess followed by gas gangrene; gas gangrene following trauma. S. G. BERKOW and R. R. TOLK. *J. Am. M. Ass.*, 1923, lxxx, 1689.

A new method of treating ischiorectal and other abscesses. J. P. LOCKHART-MUMMERY. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Surg., 65.

Tuberculosis within the rectum. C. V. DRUECK. *N. York M. J. & Med. Rec.*, 1923, cxvii, 690.

Amputation of the rectum and total prostatic-vesiculectomy for associated neoplastic and tuberculous processes. G. D'AGATA. *Arch. ital. di chir.*, 1923, vi, 602. [351]

Cancer of the rectum and sigmoid in childhood. C. H. PHIFER. *Ann. Surg.*, 1923, lxxvii, 711.

Volvulus of the small intestine in a patient with cancer of the rectum. R. DELITCH. *Bull. et mém. Soc. anat. de Par.*, 1923, xciii, 43.

A case which was clinically one of inoperable carcinoma of the rectum treated by colostomy and subsequent injections of cuprase-collosal selenium and collosal cuprum for over two years, with disappearance of the growth. L. E. C. NORBURY. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Surg., 67.

The treatment by radiation of cancer of the rectum. H. H. BOWING and F. W. ANDERSON. *Am. J. Roentgenol.*, 1923, x, 230. [351]

Anal fistula, etiology and treatment. A. ZENO and C. PIOLA. *Semana méd.*, 1923, xxx, 1006.

A new type of drain for use in anorectal fistulæ. J. F. MONTAGUE. *N. York M. J. & Med. Rec.*, 1923, cxvii, 692.

Anorectal gonorrhœa. LÉVY-WEISSMANN. *J. d'urol. méd. et chir.*, 1923, xiv, 13.

Liver, Gall-Bladder, Pancreas, and Spleen

The collateral circulation in the portal system. F. WALKER. *Arch. f. klin. Chir.*, 1922, cxix, 818.

The pathology of human bile secretion, and a report on polycholia. GUNDERMANN. *Beitr. z. klin. Chir.*, 1923, cxviii, 1. [352]

Studies on the total bile. III. On the bile changes caused by a pressure obstacle to secretion; and on hydro-hepatosis. P. D. MCMASTER, G. O. BROWN and P. ROUS. *J. Exper. Med.*, 1923, xxxvii, 685. [353]

Studies on the total bile. IV. The enterohepatic circulation of bile pigment. G. O. BROWN, P. D. MCMASTER, and P. ROUS. *J. Exper. Med.*, 1923, xxxvii, 699. [353]

Acute catarrhal jaundice. H. C. MICHIE. *Mil. Surgeon*, 1923, lii, 390. [353]

A case of acholuric jaundice. V. COATES. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Clin. Sect., 28.

Non-obstructive jaundice. R. J. M. BUCHANAN. *Brit. M. J.*, 1923, i, 764.

The results of ligating the hepatic artery: observations on the functional examination of the liver. A. RITTER. *Mitt. a. d. Grenzgeb. d. Med. u. Chir.*, 1922, xxxv, 76. [354]

Studies on the physiology of the liver. IV. The effect of total removal of the liver after pancreatectomy on the blood-sugar level. F. C. MANN and T. B. MAGATH. *Arch. Int. Med.*, 1923, xxxi, 797. [354]

A clinical test for liver function. E. BOGEN. *J. Lab. & Clin. Med.*, 1923, viii, 619.

Observations on the value of phenoltetrachlorophthalein in estimating liver function. G. M. PERSOL and H. L. BOCKUS. *Arch. Int. Med.*, 1923, xxxi, 623. [355]

The movable liver and its successful treatment: a new method of operation based on the principle of supporting the liver from below and a plastic procedure on the abdominal wall with doubling of the aponeurosis. F. J. KAISER. *Deutsche Ztschr. f. Chir.*, 1922, clxxv, 411. [355]

Large intracapsular hæmorrhage of the liver. A. WEEKS. *Surg. Clin. N. Am.*, 1923, iii, 673.

Biliary lymphangitis. W. H. FISHER. *Ohio State M. J.*, 1923, xix, 400.

A pedunculated hydatid cyst of the liver mistaken for an ectopic spleen. FERRARI and VERGOZ. *Bull. et mém. Soc. anat. de Par.*, 1923, xciii, 261.

Amœbic infection of the liver. J. W. LARIMORE. *J. Missouri State M. Ass.*, 1923, xx, 190.

The treatment of liver abscess by aspiration. P. MANSON-BAHR, G. C. LOW, J. J. PRATT, and A. L. GREGG. *Lancet*, 1923, cciv, 941. [356]

Liver abscess; report of 100 operations. A. I. LUDLOW. *Surg., Gynec. & Obst.*, 1923, xxxvi, 336. [357]

Presentation of a child with a cyst of the liver and a typical hydatid thrill. MUÑOVERRO. *Arch. de med., cirug. y especial.*, 1923, xi, an. de la acad. méd.-quirúrg. españ., 385.

Four cases of tertiary syphilis of the liver of the pseudo-surgical type; the importance of pain in tertiary hepatitis. D. DENÉCHAU, H. FRUCHAUD, and P. AGOULON. *Bull. et mém. Soc. méd. d. hôp. de Par.*, 1923, 38, xxxix, 556. [357]

The surgery of gumma of the liver. E. MONSE. *Beitr. z. klin. Chir.*, 1923, cxxviii, 148. [357]

A case in which an adenoma weighing 2 lb., 3 oz. was successfully removed from the liver; with remarks on the subject of partial hepatectomy. G. G. TURNER. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Surg., 43.

Primary carcinoma of the liver excised by operation. G. WRIGHT. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Surg., 56.

A case of resection of the liver for malignant disease spreading from the gall-bladder. C. FRANKAU. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Surg., 49.

A case of excision of an adenoma of the liver which had ruptured spontaneously causing internal hæmorrhage. P. TURNER. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Surg., 60.

A case of primary tumor of the liver removed by operation. F. KIDD. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Surg., 61.

A case of torsion of the gall-bladder. H. C. JONAS. *Brit. M. J.*, 1923, i, 1016.

Chronic cholecystitis simulating gastric malignancy. W. W. BOARDMAN and P. K. GILMAN. *Surg. Clin. N. Am.*, 1923, iii, 801.

Chronic biliary fistula; implantation of sinus into the stomach. H. LILIENTHAL. *Ann. Surg.*, 1923, lxxvii, 765.

Recurrence of biliary calculi eighteen years after cholecystostomy. SOURDAT. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 719.

A few points regarding the diagnosis and treatment of gall-bladder lesions. M. EINHORN. *N. York M. J. & Med. Rec.*, 1923, cxvii, 649.

How shall we treat gall-bladder disease? D. W. PALMER. *Cincinnati J. M.*, 1923, iv, 243; *Am. J. Surg.*, 1923, xxxvii, 149.

Surgery of the gall-bladder. E. S. JUDD. *Cincinnati J. M.*, 1923, iv, 178.

Wounds of the choledochus. HARTMANN. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 546. [358]

The artificial common duct. E. SLOCKER LA ROSA. *Clin. y lab.*, 1923, i, 417. [358]

A new test for pancreatic efficiency; an aid to the diagnosis of gall-bladder disease and certain obscure dyspepsias. F. L. APPERLY and G. CAMERON. *Med. J. Australia*, 1923, i, 521. [358]

Two pancreatic functional tests. G. CAMERON. *Med. J. Australia*, 1923, i, 718.

Pancreatic cyst. E. W. NORTHCUTT. *Kentucky M. J.*, 1923, xxi, 285.

Acute œdema of the pancreas, a preliminary stage of acute necrosis of the pancreas. H. ZOEPFEL. *Deutsche Ztschr. f. Chir.*, 1922, clxxv, 301.

The differential diagnosis of pancreatic lithiasis. J. L. A. PEUTZ. *Deutsche med. Wchnschr.*, 1923, xlix, 178. [358]

Pancreatic lithiasis. M. SIMMONDS. *Fortschr. a. d. Geb. d. Roentgenstrahlen*, 1923, xxx, 81. [359]

Solid adenomata of the pancreas with exocrin disposition. P. HICKEL and J. NORDMANN. *Bull. et mém. Soc. anat. de Par.*, 1923, xciii, 187.

The diagnosis of spleen function. M. H. KAHN. *Am. J. M. Sc.*, 1923, clxv, 214. [359]

Experimental research upon the importance of the spleen in the production of agglutinins. A. STEFANI. *Sperimentale*, 1922, lxxvi, 361. [361]

The effect of splenectomy on the hæmatopoietic system of macacus rhesus. E. B. KRUMBHAAR and J. H. MUSSER, JR. *Arch. Int. Med.*, 1923, xxi, 686. [361]

Traumatic rupture of the normal spleen. E. C. ROBIT-SHEK. *Minnesota Med.*, 1923, vi, 365.

The splenomegaly of hepatic cirrhosis. H. EPPINGER. *Semana méd.*, 1923, xxx, 604. [361]

Malarial splenomegaly and its complications. O. CIGNOZZI. *Policlin.*, Rome 1923, xxx, sez. chir., 57. [361]

Splenic anæmia: a clinical and pathological study of sixty-nine cases. W. C. CHANEY. *Am. J. M. Sc.*, 1923, clxv, 856.

The nature of Banti's disease: its differentiation from other types of splenomegaly and its relation to "idiopathic" non-alcoholic progressive hepatic cirrhosis in children and young persons. F. P. WEBER. *Brit. J. Child. Dis.*, 1923, xx, 78.

A case of familial hæmolytic splenomegaly treated by X-rays. E. S. LITTLE-JOHN. *Med. J. Australia*, 1923, i, 699.

Splenectomy for hæmolytic jaundice. E. BEER. *Ann. Surg.*, 1923, lxxvii, 764.

The surgery of splenic anæmia. R. H. FOWLER. *Am. J. Surg.*, 1923, xxxvii, 153, 172, 192.

Survival of splenic tissue after splenectomy. R. T. LEE. *Lancet*, 1923, cciv, 1312.

Miscellaneous

An abdominal lymphosarcoma with multiple metastasis clinically simulating a thyroid cancer. L. BERGER and R. WEISS. *Bull. et mém. Soc. anat. de Par.*, 1923, xciii, 190.

The phrenic as the nerve of motor innervation of the diaphragm. K. SCHLAEFFER. *Bull. Johns Hopkins Hosp.*, Balt., 1923, xxxiv, 195.

Eversion of the diaphragm: report of an instance and discussion of the clinical aspects of the anomaly. H. G. BECK. *Ann. Clin. Med.*, 1923, i, 362. [362]

Congenital diaphragmatic hernia. J. F. CONNORS and W. T. ROBINSON. *Ann. Surg.*, 1923, lxxvii, 725.

Eversion of the diaphragm. D. D. STOWELL. *Arch. Pediat.*, 1923, xl, 407.

Diaphragmatic hernia, non-traumatic, with a report of four original cases. E. H. KESSLER. *J. Radiol.*, 1923, iv, 199.

Diaphragmatic hernia. G. FEY and J. BRAINE. *Bull. et mém. Soc. anat. de Par.*, 1923, xciii, 65.

Diaphragmatic hernia. A. T. MANN. *Minnesota Med.*, 1923, vi, 285. [362]

The defenseless areas of the abdomen. G. W. CRILE. *Am. J. Obst. & Gynec.*, 1923, v, 620.

Early diagnosis of the more common upper abdominal conditions. J. B. DEEVER. *Boston M. & S. J.*, 1923, clxxxviii, 937.

The diagnosis of acute surgical diseases of the upper abdomen. R. F. WARD. *N. York M. J. & Med. Rec.*, 1923, cxvii, 667.

Upper abdominal disease in relation to insurance risks. M. BEHREND. *N. York M. J. & Med. Rec.*, 1923, cxvii, 669.

Surgical strategy as an adjunct to local anæsthesia in abdominal surgery. R. E. FARR. *Am. J. Obst. & Gynec.*, 1923, v, 624.

Drainage in intra-abdominal infection. A. O. WILENSKY. *Ann. Surg.*, 1923, lxxvii, 558. [362]

Three cases of thoraco-abdominal wounds. F. COMTE and M. FERRON. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 720.

A crochet needle in the abdominal cavity. R. O. McALEXANDER. *J. Indiana State M. Ass.*, 1923, xvi, 204.

Carcinoma, with especial reference to the alimentary tract. W. E. CLARK and M. W. PERRY. *N. York M. J. & Med. Rec.*, 1923, cxvii, 672.

GYNECOLOGY

Uterus

Congenital absence of the uterus and vagina: report of a case. G. J. FERREIRA. *J. Am. M. Ass.*, 1923, lxxx, 1616.

The life history of the double uterus. J. O. POLAK. *N. York State J. M.*, 1923, xxiii, 107. [363]

Inguinal hernia of the uterus. F. S. LATTERI. *Arch. ital. de chir.*, 1923, vii, 39.

A note on the relative merits of operations on the round ligaments for retroversion of the uterus. J. H. FERGUSON. *Edinburgh M. J.*, 1923, n.s. xxx, Tr. *Edinburgh Obst. Soc.*, 82.

Remarks on the diagnosis and treatment of uterine retrodisplacements. C. H. DAVIS. *Wisconsin M. J.*, 1923, xxii, 10.

Rupture of the uterus after operation for uterine suspension. A. B. SPALDING. *Surg. Clin. N. Am.*, 1923, iii, 795.

The Kielland operation for prolapsus uteri. H. J. BOLDT. *Surg., Gynec. & Obst.*, 1923, xxxvi, 742. [363]

A congenital deformity of the posterior lip of the cervix. H. R. SPENCER. *J. Obst. & Gynec. Brit. Emp.*, 1923, xxx, 202.

Intrinsic dysmenorrhœa. W. B. BELL. *J. Obst. & Gynec. Brit. Emp.*, 1923, xxx, 119. [363]

The treatment of dysmenorrhœa. L. G. PHILLIPS. *Med. Press*, 1923, n.s. cxv, 499.

The practical management of dysmenorrhœa. S. R. MEAKER. *Boston M. & S. J.*, 1923, clxxxviii, 1000. [363]

The treatment of chronic metritis by carbon dioxide snow. L. BIZARD and R. RABUT. *Rev. franç. de gynéc. et d'obst.*, 1923, xviii, 302.

A plea for the eradication of chronic endocervicitis. J. O. CLETCHER. *Illinois M. J.*, 1923, xliii, 465.

Radium in the treatment of uterine hæmorrhage, with a report upon forty-five cases. S. FORSDIKE. *Lancet*, 1923, cciv, 1309.

The treatment of severe and persistent uterine hæmorrhage by radium, with a report upon forty-five cases. S. FORSDIKE. *Proc. Roy. Soc. Med., Lond.*, 1923, xvi, Sect. Obst. & Gynec., 69. [365]

A case of calcified bodies in the uterine cavity. H. L. MURRAY. *J. Obst. & Gynec. Brit. Emp.*, 1923, xxx, 220.

A cervical fibroid showing a vein opening into the cervical canal. B. WHITEHOUSE. *J. Obst. & Gynec. Brit. Emp.*, 1923, xxx, 211.

Bleeding fibroids and radiation. P. BÉGUIN. *Gynéc. et obst.*, 1923, vii, 369.

Suppuration of uterine fibromata. L. HERLITZKA. *Riv. genec., ostet., pediat., e med. gen.*, 1923, xviii, 58.

The treatment of uterine fibroids: operation or radiation? W. F. SHAW. *Brit. M. J.*, 1923, i, 1005.

A uterine tumor formed of a pedunculated subperitoneal fibromyoma developed at the expense of the uterine cervix. LE FILLIATRE. *Bull. et mém. Soc. anat. de Par.*, 1923, xciii, 368.

Section of currettings. H. BRIGGS. *Proc. Roy. Soc. Med., Lond.*, 1923, xvi, Sect. Obst. & Gynec., 61.

Hysterectomy and oöphorectomy for benign tumors and suppurative disease in 600 women. G. P. LA ROQUE. *Virginia M. Month.*, 1923, i, 156.

Late complications of simple subtotal hysterectomy for fibroma or cancer of the body of the uterus. TIXIER. *Lyon chir.*, 1923, xx, 250.

Chorion-epithelioma of the uterus showing a very extensive growth in the uterine wall. S. G. LUKER. *Proc. Roy. Soc. Med., Lond.*, 1923, xvi, Sect. Obst. & Gynec., 67.

General principles of treatment of cancer of the uterus. CASMAN. *Arch. méd. belges*, 1923, lxxvi, 313.

Histologic pictures representing the cure of uterine basocellular epithelioma. F. DAELS. *Arch. Radiol. & Electrotherapy*, 1923, xxviii, 1. [365]

Two cases of cancer of the body of the uterus with secondary growths in the vulva and vagina. H. SPENCER. *J. Obst. & Gynec. Brit. Emp.*, 1923, xxx, 197.

A case of epithelioma of the cervix in a nullipara of 23 years. GÉRIN-LAJOIE. *Bull. et mém. Soc. anat. de Par.*, 1923, xciii, 266.

Carcinoma of the cervix uteri: a pathological and clinical study with particular reference to the relative malignancy of the neoplastic process as indicated by the predominant type of cancer. K. H. MARTZLOFF. *Bull. Johns Hopkins Hosp., Balt.*, 1923, xxxiv, 141, 184. [366]

Cancer of the cervix uteri. W. P. GRAVES. *Boston M. & S. J.*, 1923, clxxxviii, 1006.

The treatment of cancer of the cervix of the uterus. L. MALLET. *Presse méd., Par.*, 1923, xxxi, 289.

What constitutes the surgical cervix? J. O. POLAK and G. W. PHELAN. *Am. J. Obst. & Gynec.*, 1923, v, 640. [367]

Radium as an adjunct to surgery in the treatment of uterine conditions. W. P. FITE. *J. Oklahoma State M. Ass.*, 1923, xvi, 182.

A mass of secondary leiomyosarcoma following subtotal hysterectomy. A. C. PALMER. *Proc. Roy. Soc. Med., Lond.*, 1923, xvi, Sect. Obst. & Gynec., 62.

A leiomyosarcoma of a fibromyoma removed by subtotal hysterectomy. E. HOLLAND. *Proc. Roy. Soc. Med., Lond.*, 1923, xvi, Sect. Obst. & Gynec., 64.

Two specimens of sarcoma of the uterus. J. D. BARRIS. *Proc. Roy. Soc. Med., Lond.*, 1923, xvi, Sect. Obst. & Gynec., 65.

Adnexal and Peri-Uterine Conditions

Cystic inflammatory disease of the adnexa. J. PORCEL. *Rev. expan. de chir.*, 1923, v, 161, 215.

Transverse cuneiform excision of the uterus in bilateral inflammatory conditions. O. BEUTTNER. *Gynécologie*, 1923, xxii, 65.

Spontaneous contractions of the fallopian tube of the domestic pig with reference to the œstrous cycle. D. L. SECKINGER. *Bull. Johns Hopkins Hosp., Balt.*, 1923, xxxiv, 236.

A case of hernia of the salpinx. JEANNENEY and DAX. *Bull. et mém. Soc. anat. de Par.*, 1923, xciii, 141.

A case of strangulation of a normal fallopian tube and ovary. H. L. MURRAY. *J. Obst. & Gynec. Brit. Emp.*, 1923, xxx, 222.

The radiation of pain in lesions of the fallopian tube. M. MARCUS. *Brit. M. J.*, 1923, i, 185. [367]

Tuberculous hyperplasia of the tube simulating cancer. DISS and KUHLMANN. *Bull. et mém. Soc. anat. de Par.*, 1923, xciii, 200.

Primary chorionepithelioma of the fallopian tube. S. SOLOMONS and E. C. SMITH. *J. Obst. & Gynec. Brit. Emp.*, 1923, xxx, 162.

Autoplastic ovarian transplantation. J. H. NATTRASS. *Brit. M. J.*, 1923, i, 1051. [367]

Ovarian cysts in children: report of cases. B. C. NALLE. South. M. J., 1923, xvi, 469.

Intestinal occlusion with cystic disease of the ovary. A. J. BENGOLEA. Bol. de la Soc. de obst. y ginec. de Buenos Aires, 1923, ii, 73.

Intraperitoneal rupture of a mucoid cyst of the ovary. H. MONDOR and R. BOUCHARD. Bull. et mém. Soc. anat. de Par., 1923, xciii, 138.

Tuberculosis of the ovary and pregnancy. VAUTRIN. Gynec. et obst., 1923, vii, 193.

Fibroma of the ovary, with an account of a case. A. W. OWEN. Lancet, 1923, cciv, 1211.

Hypernephroma of the right ovary in a child. W. A. DOWNES. Ann. Surg., 1923, lxxvii, 758.

Folliculoid cancer of the ovary. M. R. ROBINSON. Am. J. Obst. & Gynec., 1923, v, 581.

Papillary adenocarcinoma of the ovary, with permeation of the great vessels of the heart. H. J. C. GIBSON and G. M. FINDLAY. J. Obst. & Gynec. Brit. Emp., 1923, xxx, 204.

External Genitalia

Cyst of the vulva. J. P. TOURNEUX. Bull. et mém. Soc. anat. de Par., 1923, xciii, 342.

Vaginal repair: uterine suspension. F. W. LYNCH. Surg. Clin. N. Am., 1923, iii, 595.

"Cloisonnement" of the vagina, the formation of a partition. H. HARTMANN. Gynec. et obst., 1923, vii, 415.

A case of obliteration of the upper two-thirds of the vagina after pneumonia. SERDUKOFF. Gynec. et obst., 1923, vii, 412.

Angioma of the vaginal wall. H. BRIGGS. Proc. Roy. Soc. Med., Lond., 1923, xvi, Sect. Obst. & Gynec., 61.

Miscellaneous

The effects of physical exercise on menstruation. S. CLOW. Lancet, 1923, cciv, 1161.

Gastroptosis in its relation to gynecology. K. C. MEAD. Boston M. & S. J., 1923, clxxxviii, 1037.

Primary sterility. A. J. RONGY. Am. J. Obst. & Gynec., 1923, v, 631.

Acute pelvic problems. L. DRETZKA. J. Michigan State M. Soc., 1923, xxii, 272.

Tuberculosis of the genitalia; with review of the literature. B. SOLOMONS. Surg., Gynec. & Obst., 1923, xxxvi, 777.

Electrotherapy in gynecological practice. E. C. TITUS. Am. J. Obst. & Gynec., 1923, v, 647.

A consideration of the relative values of radium, deep X-ray therapy, and surgery in the treatment of pelvic neoplastic conditions. E. T. NEWELL. Internat. J. Surg., 1923, xxxvi, 192.

The end-results of the X-ray treatment of cancer at the Freiburg University Gynecological Clinic, 1913-1916. K. BERGER. Strahlentherapie, 1922, xiv, 446. [368]

OBSTETRICS

Pregnancy and Its Complications

Pre-partum care with special reference to the value of an early diagnosis and treatment of certain complications. T. B. SELLERS and D. C. MCBRIDE. South. M. J., 1923, xvi, 473.

Diet during pregnancy. H. F. DAY. Boston M. & S. J., 1923, clxxxviii, 904. [369]

Pregnancy and labor in very young and elderly primiparae. P. F. WILLIAMS. Atlantic M. J., 1923, xxvi, 456. [369]

The pathologic reaction of tissue extract (cytost) liberated in pregnancy. F. B. TURCK. Am. J. Obst. & Gynec., 1923, v, 139. [369]

A new obstetrical table. E. L. CORNELL. Am. J. Obst. & Gynec., 1923, v, 637.

The duration of pregnancy in its medicolegal aspect. T. W. EDEN. Lancet, 1923, cciv, 1199.

An obstetrical case presenting an unusual group of complications. L. E. PANEUF. Boston M. & S. J., 1923, clxxxviii, 942.

Acute rotation of the gravid uterus. E. ZÁRATE. Semana méd., 1923, xxx, 1029.

Incarceration of the gravid uterus. F. LUQUE. Arch. de med., cirug. y especial, 1923, xi, an. de la Soc. ginec. espan., 68.

Nephrolithiasis complicating pregnancy. A. P. HEINECK. Illinois M. J., 1923, xliii, 442.

Heart disease in pregnancy. A. L. ROBINSON. J. Obst. & Gynec. Brit. Emp., 1923, xxx, 172.

Heart disease in pregnancy. W. B. BREED and P. D. WHITE. Boston M. & S. J., 1923, clxxxviii, 984.

Notes on the problem of heart diseases in pregnancy. B. E. HAMILTON. Boston M. & S. J., 1923, clxxxviii, 987.

Note on a case of pneumococcal peritonitis at the eighth month of pregnancy. B. M. DICK. Edinburgh M. J., 1923, n.s. xxx, Tr. Edinburgh Obst. Soc., 97.

The pathologic anatomy of "auto-intoxications" in pregnancy and childbirth. F. HARBITZ. Surg., Gynec. & Obst., 1923, xxxvi, 767.

Toxæmia of pregnancy. H. E. DIEHL. Hahneman. Month., 1923, lviii, 385.

Placenta prævia. N. F. PAXSON. Hahneman. Month., 1923, lviii, 369.

Therapeutic abortion. L. C. REDMON. Kentucky M. J., 1923, xxi, 298.

The technique of artificial interruption of pregnancy. G. LEVI. Riv. ginec., ostet., pediat. e med. gen., 1923, xviii, 54.

The diagnosis of tubal pregnancy, cornual pregnancy. E. DOUAY and R. ROCHAT. Gynec. et obst., 1923, vii, 216. [369]

The symptoms and signs of extra-uterine pregnancy at or near term, with report of two cases, and the treatment of late ectopic gestation, together with a review of the literature and recorded cases. H. E. HAYD and I. W. POTTER. Am. J. Obst. & Gynec., 1923, v, 601. [370]

A case of ectopic pregnancy of ovarian type. C. A. CASTAÑO and A. J. RISOLIA. Bol. de la Soc. de obst. y ginec. de Buenos Aires, 1923, ii, 75.

A case of c-existing uterine and ectopic gestations. J. A. BERRY. Lancet, 1923, cciv, 1157.

Ruptural extra-uterine twin pregnancy co-existing with uterine pregnancy. DUPONCHEL. Bull. et mém. Soc. anat. de Par., 1923, xciii, 48.

Tubal twins and tubal pregnancy. L. B. AREY. Surg., Gynec. & Obst., 1923, xxxvi, 803.

Porro's operation for cicatricial atresia of the cervix and infection of the uterus. A. J. GUIROY. Bol. de la Soc. de obst. y ginec. de Buenos Aires, 1923, ii, 110.

Labor and Its Complications

A new method of producing premature delivery, and its indications. PARACHE. Siglo méd., 1923, lxx, 525.

Painless labor. R. L. RAIFORD. *Virginia M. Month.*, 1923, I, 152.

Do present-day efforts toward the elimination of the second stage of labor constitute a forward step in practical obstetrics? J. O. ARNOLD. *Therap. Gaz.*, 1923, 3s. xxxix, 396. [370]

A discussion of the factors influencing breech, cephalic, and transverse presentation. L. DROSIN. *Internat. J. Surg.*, 1923, xxxvi, 205. [370]

Occipito-posterior positions. D. DOUGAL. *Brit. M. J.*, 1923, I, 765.

Version in obstetrics. R. T. LA VAKE. *J. Lancet*, 1923, xliii, 259.

Notes on three cases of contraction ring dystocia. G. FITZGIBBON. *J. Obst. & Gynec. Brit. Emp.*, 1923, xxx, 208.

A clinical study of anomalies in the period of dilatation during labor. E. GUEISSAZ. *Gynec. et obst.*, 1923, vii, 390.

The extraction of the aftercoming head by the Smellie-Veit method. L. BYLICKI. *Gynec. et obst.*, 1923, vii, 388.

Contribution to the study of the low cesarean operation. REEB. *Rev. franç. de gynec. et d'obst.*, 1923, xviii, 257.

Cesarean section and hysterectomy in a patient with contracted pelvis and occipito-posterior presentation. H. C. E. DONOVAN. *Med. J. Australia*, 1923, I, 609.

The technique of cesarean section. S. J. CAMERON. *Proc. Roy. Soc. Med., Lond.*, 1923, xvi, Sect. Obst. & Gynec., 50. [371]

A note on two cases of cesarean section under spinal anæsthesia with tropacocaine. B. WHITEHOUSE and H. FEATHERSTONE. *Proc. Roy. Soc. Med., Lond.*, 1923, xvi, Sect. Obst. & Gynec., 55. [371]

The Sehrt aorta clamp for the control of postpartum hæmorrhage. M. P. RUCKER. *Virginia M. Month.*, 1923, I, 162.

Puerperium and Its Complications

The puerperium. J. PHILLIPS. *Practitioner*, 1923, cx, 409.

A study in puerperal morbidity. E. ENO. *Surg., Gynec. & Obst.*, 1923, xxxvi, 797.

A case of complete inversion of the uterus occurring after labor. H. COHEN. *Lancet*, 1923, cciv, 1108.

Acute puerperal inversion of the uterus. R. R. FOOTE. *Brit. M. J.*, 1923, I, 1092.

Pathology of the puerperium. E. S. SNYDER. *Hahneman. Month.*, 1923, lviii, 376.

The treatment of puerperal infections. B. P. WATSON. *Edinburgh M. J.*, 1923, n.s. xxx, Sect. Edinburgh Obst. Soc., 68. [371]

The fatality of puerperal fever. R. DUDFIELD. *Lancet*, 1923, cciv, 1264.

Puerperal insanity. R. ARMSTRONG-JONES. *Lancet*, 1923, cciv, 1297.

Newborn

The management and care of the premature infant. J. R. SHUMAN. *Arch. Pediat.*, 1923, xl, 381.

Differentiation of skin eruptions in the newborn. L. P. HOWELL. *Ohio State M. J.*, 1923, xix, 417.

The hæmorrhages of the newborn. J. N. CRUICKSHANK. *Lancet*, 1923, cciv, 836. [371]

Intraperitoneal infusion in infancy. J. H. READING. *Hahneman. Month.*, 1923, lviii, 278.

The importance of colostrum to the newborn infant. A. KUTTNER and B. RATNER. *Am. J. Dis. Child.*, 1923, xxv, 413.

Miscellaneous

Progress in modern obstetrical methods. E. T. RANSOM. *Hahneman. Month.*, 1923, lviii, 360.

Problems of obstetrical practice. W. W. CHIPMAN. *Canadian M. Ass. J.*, 1923, xiii, 379.

Conservative vs. radical obstetrics. R. L. DE NORMANDIE. *Boston M. & S. J.* 1923, clxxxviii, 1028.

The active principle of ergot and its application in obstetrics and gynecology. M. WETTERWALD. *Rev. franç. de gynec. et d'obst.*, 1923, xviii, 289.

Birth control. H. R. ANDREWS. *Practitioner*, 1923, cx, 14.

GENITO-URINARY SURGERY

Adrenal, Kidney, and Ureter

The importance of the adrenal glands in the action of certain alkaloids. C. W. EDMUNDS and P. C. LLOYD. *J. Lab. & Clin. Med.*, 1923, viii, 563.

Massive destruction of the adrenals in a newborn infant from a large bilateral hæmatoma. L. CORNIL and R. TOUZARD. *Bull. et mém. Soc. anat. de Par.*, 1923, xciii, 370.

A cyst of the right suprarenal capsule removed by operation. H. A. BALLANCE. *Brit. M. J.*, 1923, I, 926.

A cyst of the adrenal gland. A. SÉZARY and F. HIRSCHBERG. *Bull. et mém. Soc. anat. de Par.*, 1923, xciii, 150.

Tuberculosis of the suprarenal glands in tuberculous peritonitis. W. RAY. *Med. J. Australia*, 1923, I, 698.

Suprarenal tumors—suprarenomata. R. G. CABRED. *Semana méd.*, 1923, xxx, 747.

A case of metastatic hypernephroma. L. SENCERT and P. MASSON. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 735.

A case of metastatic hypernephroma. SENCERT and MASSON. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 748.

Aberrant adrenal cortex in the mesosalpinx. J. P. TOURNEUX. *Bull. et mém. Soc. anat. de Par.*, 1923, xciii, 340.

Malignant hypernephroma in children. L. HOAG. *Am. J. Dis. Child.*, 1923, xxv, 441.

Lacerated kidney due to indirect violence. J. C. JEFFERSON. *Brit. M. J.*, 1923, I, 1053.

Idiopathic nephralgia. J. T. GERAGHTY and W. A. FRONTZ. *South. M. J.*, 1923, xvi, 462.

Double kidney. D. N. EISENDRATH. *Ann. Surg.*, 1923, lxxvii, 450, 531. [373]

A case of solitary kidney with two ureters. CUVIGNY and TOURNEIZ. *Bull. et mém. Soc. anat. de Par.*, 1923, xciii, 63.

Iliopelvic ectopy of the kidneys. C. OBERLING. *Bull. et mém. Soc. anat. de Par.*, 1923, xciii, 392.

The value of functional tests of the kidneys in the diagnosis of unusual forms of renal tuberculosis. P. E. DUCHEIN. *Presse méd., Par.*, 1923, xxxi, 548.

Indicanæmia, an early and very dependable symptom of renal insufficiency. G. BAAR. *Northwest Med.*, 1923, xxi, 210.

A useful urinary finding in the diagnosis of hydronephrosis and pyonephrosis. J. ROSENBLUM. *J. Lab. & Clin. Med.*, 1923, viii, 621.

Chloride retention in experimental hydronephrosis. N. M. KEITH and D. S. PULFORD, JR. *J. Exper. Med.*, 1923, xxxvii, 175. [374]

Experimental hydronephrosis: the failure of diuresis to affect its rate of development. F. HINMAN and A. E. BELT. *J. Urol.*, 1923, ix, 397. [374]

Hydronephrosis from kinking of the ureter over a blood vessel. ALGLAVE. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 678.

The experimental production of a fatal nephritis with a filter-passing virus of nervous origin. C. C. TWORT and H. E. ARCHER. *Lancet*, 1923, cciv, 1102.

Partial pyelonephritis in a kidney with two ureters. GUYOT and JEANNENEY. *J. d'urol., méd. et chir.*, 1923, xiv, 37. [374]

Bilateral multiple kidney abscesses. E. BEER. *Ann. Surg.*, 1923, lxxvii, 762.

Perinephrocolic fistula with inflammatory lesions of the kidney. D'ALLAINES and ROUFFIAC. *Bull. et mém. Soc. anat. de Par.*, 1923, xciii, 324.

Necrosis of the right kidney from thrombosis of the renal vein. MARION. *J. d'urol., méd. et chir.*, 1923, xv, 411.

Kidney lesions produced by tissue breakdown (cytost): pathogenesis and treatment. F. B. TURCK. *Am. J. Surg.*, 1923, xxxvii, 129.

A neoplasm implanted on a large calculous pyonephrosis. G. MARION. *J. d'urol., méd. et chir.*, 1923, xv, 377.

Neoplasms of the kidney. C. A. CASTAÑO and A. J. RISOLIA. *Semana méd.*, 1923, xxx, 993.

Malignant neoplasia of the kidney occurring in infancy. J. A. H. MAGOUN, JR., and W. C. MACCARTY. *Surg., Gynec. & Obst.*, 1923, xxxvi, 781.

Cancer of the right kidney with rapid evolution. G. L. HARTMANN-KEPPEL. *Bull. et mém. Soc. anat. de Par.*, 1923, xciii, 58.

Pyelography: common diagnostic errors. M. B. WESON. *California State J. M.*, 1923, xxi, 193. [374]

The decision for nephrectomy. L. T. ASHCRAFT. *Hahnemann. Month.*, 1923, lviii, 433.

Vesico-ureteral reflux after nephrectomy. J. S. PAGÉS. *Semana méd.*, 1923, xxx, 1039.

Staphylococcal perinephritic abscess cured by vaccine therapy. EMILE-WEIL and POLLET. *Bull. et mém. Soc. méd. d. hôp. de Par.*, 1923, 3s, xxxix, 706.

Two solid paranephritic tumors. BOULANGER-PILET. *Bull. et mém. Soc. anat. de Par.*, 1923, xciii, 20.

Ureteral calculus in a 6-year-old child; a case report. W. W. ANDERSON and W. R. HOLMES. *J. Med. Ass. Georgia*, 1923, xii, 234.

Absence of the terminal anastomosis of the ureter with dilatation and hydronephrosis on the right side and embolic nephritis on the left side. OLIVIER, DELAHAYE, PEIGNAUX, and CORNIL. *Bull. et mém. Soc. anat. de Par.*, 1923, xciii, 162.

Bladder, Urethra, and Penis

Exstrophy of the bladder with successful transplantation of ureters into the rectum; report of two cases. E. H. HUTCHINS and A. F. HUTCHINS. *Surg., Gynec. & Obst.*, 1923, xxxvi, 731.

Bladder hernia in infancy. C. OLIVA. *Arch. ital. di chir.*, 1923, vi, 533.

Concerning vesical diverticula. TANT. *Bruxelles-méd.*, 1923, iii, 705.

A case of foreign body in the urinary bladder. CIFUENTES. *Arch. de med., cirug. y especial.*, 1923, xi, an. de la Acad. méd.-quirúrg., 373.

Cinematographic cystoscopy. J. STUTZIN. *Clin. y lab.*, 1923, i, 528.

A method of recognizing a short circuit in the cystoscope. J. MARTIN. *J. d'urol., méd. et chir.*, 1923, xv, 295.

A sterilizable cystoscope. E. PAPIN. *J. d'urol., méd. et chir.*, 1923, xv, 412.

Urinary intoxication from accidental injury of the bladder during laparotomy. A. J. BENGOLEA. *Bol. de la Soc. de obst. y ginec. de Buenos Aires*, 1923, ii, 78.

Two cases of traumatic lesions of the bladder. BERNASCONI. *J. d'urol., méd. et chir.*, 1923, xv, 303.

The treatment of acute retention of urine. E. TANT. *Bruxelles-méd.*, 1923, iii, 751.

A case of vesicle exclusion by bilateral ureterostomy after cystostomy. E. HUC. *J. d'urol., méd. et chir.*, 1923, xv, 317.

Cystadenoma of the bladder. G. SACCHI. *Arch. ital. di chir.*, 1923, vii, 161. [375]

A typical epithelioma of the bladder associated with supraclavicular cancerous adenopathy. C. MOREL and J. TAPIE. *Bull. et mém. Soc. méd. d. hôp. de Par.*, 1923, 3s, xxxix, 497.

The treatment of epithelial tumors of the urinary bladder, based on a consideration of 162 cases personally observed and treated. F. KIDD. *Lancet*, 1923, i, 523, 582, 636. [375]

The treatment of carcinoma of the bladder. W. NEILL, JR. *South. M. J.*, 1923, xvi, 292. [377]

Cancer of the urinary bladder cured by radium. C. BURNAM and G. WALKER. *J. Am. M. Ass.*, 1923, lxxx, 1660.

The propriety of attempting to secure primary union after operations upon the bladder and prostate. A. R. THOMPSON. *Proc. Roy. Soc. Med., Lond.*, 1923, xvi, Sect. Urol., 47.

Impotentia coeundi due to pathologic changes in the posterior urethra. J. BROADMAN. *J. Med. Soc. N. Jersey*, 1923, xx, 200.

A case of air embolism occurring during urethroscopy. R. O. WARD. *Proc. Roy. Soc. Med., Lond.*, 1923, xvi, Sect. Urol., 54.

Septicæmia following the passage of a calculus through the urethra. A. NELKEN. *J. Am. M. Ass.*, 1923, lxxx, 1846.

Complications occurring in gonorrhœal urethritis. A. H. CROSBIE. *Boston M. & S. J.*, 1923, clxxxviii, 435. [378]

A case of primary ulcerative gumma of the urethra. B. VALVERDE. *Bol. Acad. nac. de med., Rio de Janeiro*, 1923, cxv, 114.

Antigangrenous serotherapy in diffuse peri-urethral phlegm. DE BERNE-LAGARDE and FLANDRIN. *J. d'urol., méd. et chir.*, 1923, xv, 394.

Phimosis and lymphangitis of the penis. BROCA. *Med. Press*, 1923, n.s. cxv, 417.

A new operative procedure for the cure of phimosis. V. DOITEAU. *J. d'urol., méd. et chir.*, 1923, xv, 379.

Mixed chancres. C. SORIANO. *Clin. y lab.*, 1923, i, 543.

Complete epispadias in a young infant. MUNOYERRO. *Arch. de med., cirug. y especial.*, 1923, xi, an. de la Acad. méd.-quirúrg., 391.

Genital Organs

The absence of the prostate associated with endocrine disease, notably hypopituitarism; with the histories of eighteen cases. H. LISSER. *Endocrinology*, 1923, vii, 225. [379]

The mechanism of prostatism. O. GRANT. *Kentucky M. J.*, 1923, xxi, 275.

The hypertrophy of the prostate. A. KOLODNY. *J. Iowa State M. Soc.*, 1923, xiii, 243.

A clinical study of prostatic hypertrophy. T. RINGEL. *Brazil-méd.*, 1923, xxxvii, 245.

Renal insufficiency in prostatic hypertrophy. G. DEUTTMANN. *Beitr. z. klin. Chir.*, 1923, cxxviii, 79. [380]

The treatment of a prostatic tumor with deep X-ray therapy. P. J. GELPI. *South. M. J.*, 1923, xvi, 466.

Cancer of the prostate: diagnosis and treatment. J. E. BURNS. *J. Missouri State M. Ass.*, 1923, xx, 191.

The treatment of carcinoma of the prostate with radium. PAPIN and VERLIAC. *J. d'urol., méd. et chir.*, 1923, xv, 115. [380]

The standardization of Prostatectomy with reference to the recent modification of Young's technique. F. HINMAN. *Sur. Clin. N. Am.*, 1923, iii, 717.

Prostatectomy from the standpoint of the general practitioner. V. J. LAROSE. *Minnesota Med.*, 1923, vi, 376.

Infection of the seminal vesicles in relation to systemic disease. F. W. SMITH and J. H. MORRISSEY. *J. Urol.*, 1923, ix, 537.

Torsion of the spermatic cord; gangrene of the testicle without trauma. E. BUTLER. *Sur. Clin. N. Am.*, 1923, iii, 837.

Torsion of the spermatic cord. E. L. KEYES, JR., C. W. COLLINGS, and M. F. CAMPBELL. *J. Urol.*, 1923, ix, 519.

Anatomical considerations in a case of torsion of the spermatic cord. MAUCLAIRE and VIGNERON. *Bull. et mém. Soc. anat. de Par.*, 1923, xciii, 166.

Fibro-lipo-sarcoma of the spermatic cord. T. H. KELLEY. *Sur. Gynec. & Obst.*, 1923, xxxvi, 795.

Epithelioma of the epididymis. A. LAPOINTE and A. CAIN. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 701.

Surgical treatment of epididymis tuberculosis. G. SOEDERLUNG. *Acta chirurg. Scand.*, 1923, lv, 513.

The development of non-gonorrhoeal epididymitis. V. WINCKLER. *Zentralbl. f. Chir.*, 1923, 1, 89. [380]

New experimental data on the question of the seat of endocrine function of the testicle. A. LIPSCHUETZ. *Endocrinology*, 1923, vii, 1. [380]

Acute orchitis in childhood due to torsion of a hydatid of Morgagni. A. MOUCHET. *Presse méd., Par.*, 1923, xxxi, 485.

A case of tuberculosis of the testis of pseudo-neoplastic type. MAUCLAIRE and VIGNERON. *Bull. et mém. Soc. anat. de Par.*, 1923, xciii, 166.

Cancer of the testis in a child of 12 months. A. DISS and J. NORDMANN. *Bull. et mém. Soc. anat. de Par.*, 1923, xciii, 303.

Miscellaneous

The odor of urine. E. PITTARELLI. *Riforma med.*, 1923, xxxix, 463.

Urological diagnosis from the standpoint of the general practitioner. L. T. PRICE. *South. M. & S.*, 1923, lxxxv, 312.

The estimation of albumin in urine. A. J. QUICK. *J. Lab. & Clin. Med.*, 1923, viii, 615.

Idiopathic urine reaction after Wildbolz. E. ROEDELIIUS. *Ztschr. f. urol. Chir.*, 1922, x, 77.

The quantitative determination of bile pigment in urine. G. SABATINI. *Policlin., Rome*, 1923, xxx, sez. prat., 682.

Research on the choly-uria. E. DOUMER. *Presse méd., Par.*, 1923, xxxi, 428.

Hyperuricæmia; study of the principal factors influencing the retention of uric acid. E. JEANBRAU, P. CRISTOL, and S. NIKOLITCH. *J. d'urol., méd. et chir.*, 1923, xv, 249.

The production of urinary calculi by the devitalization and infection of teeth in dogs with streptococci from cases of nephrolithiasis. E. C. ROSENOW and J. G. MEISSER. *Arch. Int. Med.*, 1923, xxxi, 807.

The antithesis of urogenital tuberculosis in a tabetic patient; report of a case. V. F. MARSHALL and G. W. CARLSON. *J. Am. M. Ass.*, 1923, lxxx, 1844.

Indications for treatment in chronic infections of the lower genito-urinary tract in men. DEVROYE. *Arch. méd. belges*, 1923, lxxvi, 369.

Pre-cancerous and early cancerous lesions of the genito-urinary tract. J. R. DILLON. *California State J. M.*, 1923, xxi, 148. [382]

SURGERY OF THE BONES, JOINTS, MUSCLES, TENDONS

Conditions of the Bones, Joints, Muscles, Tendons, Etc.

The conflicting properties of periosteum and bone medulla for the constitution of bone. P. R. KATZENSTEIN. *Prog. de la clin., Madrid*, 1923, xxv, 510.

Osteogenesis imperfecta affecting two generations. H. J. C. GIBSON. *Edinburgh M. J.*, 1923, n.s. xxx, 237.

Longitudinal overgrowth of long bones. K. SPEED. *Sur. Gynec. & Obst.*, 1923, xxxvi, 787.

Report of a case of Paget's disease of the bones, or osteitis deformans. E. ROSE. *Cincinnati J. M.*, 1923, iv, 208.

A case of osteitis deformans. H. W. JONES and C. T. HOLLAND. *Arch. Radiol. & Electrotherapy*, 1923, xxviii, 17.

Spongy exostosis of the long bones. G. H. EDINGTON. *Glasgow M. J.*, 1923, n.s. xvii, 273. [383]

Hæmorrhagic osteomyelitis; report of a case. M. STRUNSKY. *J. Am. M. Ass.*, 1923, lxxx, 1833.

The morphology of the blood in pneumococcus infections of bones and joints. A. A. KOSLOWSKI. *Verhandl. d. Russ. Chir. Pirogoff-Ges., Petrograd*, 1922. [383]

The roentgenological diagnosis of bone tumors. W. R. HUTCHINSON. *U.S. Naval M. Bull.*, 1923, xviii, 679.

Bone tumors; sarcoma, periosteal group. Ossifying type—benign ossifying periostitis and myositis. J. C. BLOODGOOD. *J. Radiol.*, 1923, iv, 119. [384]

Radiotherapy in the treatment of bone tuberculosis and other conditions. J. D. SOUTHARD. *J. Arkansas M. Soc.*, 1923, xx, 6.

Tuberculosis in bones and joints. W. A. KIMMET. *Illinois M. J.*, 1923, xliii, 436.

What the pediatrician should know about joint tuberculosis. E. KING. *Arch. Pediat.*, 1923, xl, 392.

Gonococcal arthritis in a newborn male infant. S. G. ROSS. *Canadian M. Ass. J.*, 1923, xiii, 437.

Roentgen gastro-intestinal studies of patients with chronic deforming arthritis. R. G. TAYLOR. *Am. J. Roentgenol.*, 1923, x, 424.

Some less frequently considered portals of infection in arthritis and iritis. E. E. IRONS. *J. Am. M. Ass.*, 1923, lxxx, 1899.

Fibrous ankylosis, its prevention and remedy. A. C. HALLBECK. *Med. Times*, 1923, li, 148. [384]

The etiology and pathology of juxta-articular nodules. J. MONTENEGRO. *Brazil-med.*, 1923, xxxvii, 233.

A clinical study of thirty cases of muscular dystrophy. R. V. FUNSTEN. *J. Bone & Joint Surg.*, 1923, v, 190. [384]

A congenital defect of the pectoralis muscles. E. B. MORLEY. *Lancet*, 1923, cciv, 1101.

Sarcoma of the clavicle. J. F. ERDMANN. *Ann. Surg.*, 1923, lxxvii, 778.

Intra-uterine periosteal sarcoma of the humerus. W. A. SHEERWOOD. *Ann. Surg.*, 1923, lxxvii, 771.

Habitual ulnar luxation in cubitus varus and valgus. G. SCHMIDT. *Zentralbl. f. Chir.*, 1923, I, 474.

A case of cubitus varus. BERGERET. *Bull. et mém. Soc. anat. de Par.*, 1923, xciii, 347.

Wounds of the front of the wrist. J. BLANC. *Clin. y lab.*, 1923, i, 524.

Dupuytren's contraction of the palmar fascia. A. H. TUBBY. *Practitioner*, 1923, cx, 214. [385]

Synovial inflammation of the tendon sheaths of the hands and feet as an occupational disease. E. SATTLER. *Arch. f. klin. Chir.*, 1923, cxxiii, 259.

A congenital osteochondroma of the first phalanx of a finger. R. ZANOLI. *Chir. d. organi di movimento*, 1923, vii, 210.

Rupture of the dorsal aponeurosis on the first interphalangeal joint and the anatomy and physiology of the dorsal aponeurosis. G. HAUCK. *Arch. f. klin. Chir.*, 1923, cxxiii, 197.

A case of chondroma of the phalanx in the hand. St. J. D. BUXTON. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Clin. Sect., 27.

Cervical rib. H. BRUNN and H. W. FLEMING. *Surg. Clin. N. Am.*, 1923, iii, 615.

Occult cervical spina bifida. A. LÉRI. *Bull. et mém. Soc. méd. d. hôp. de Par.*, 1923, 3s. xxxix, 509.

The lumbar transverse processes. M. I. BIERMAN. *Am. J. Roentgenol.*, 1923, x, 456.

Abnormalities of the fifth lumbar transverse processes associated with sciatic pain. B. H. MOORE. *J. Bone & Joint Surg.*, 1923, v. [385]

Two cases of sacralization of the fifth lumbar vertebra. BOTREAU-ROUSSEL. *Bull. et mém. Soc. anat. de Par.*, 1923, xciii, 223.

A case of chronic ankylosing arthritis of the spine. NOVÉ-JOSSERAND. *Lyon chir.*, 1923, xx, 254.

Pott's caries successfully treated by passive congestion. V. S. DELANY. *Practitioner*, 1923, cx, 455.

Pott's disease of the spine. D. POWER. *Brit. J. Surg.*, 1923, xi, 1.

Tuberculosis of the sacro-iliac joint. H. C. W. NUTTALL. *Lancet*, 1923, cciv, 839. [386]

Sacro-iliac arthrosis obliterans. E. S. BLAINE. *Am. J. Roentgenol.*, 1923, x, 189. [387]

The diagnosis of hip disease, with cases illustrating common errors. E. D. FENNER. *N. Orleans M. & S. J.*, 1923, lxxv, 749.

On coxa plana and its causation. M. JANSEN. *J. Bone & Joint Surg.*, 1923, v, 265. [387]

The true nature of osteochondritis or coxa plana. F. CALOT. *Bruxelles-méd.*, 1923, iii, 762.

Microscopic findings in juvenile arthritis deformans (Legg-Calvé-Perthes osteochondritis deformans juvenilis coxae), and comparative research on the epiphysis of the head of the femur with particular reference to the fovea. F. J. LANG. *Arch. f. path. Anat.*, 1922, ccxxxix, 76.

Osteomyelitis of the femur with abscess cured without intervention or vaccination. P. HALLOPEAU. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 711.

Traumatic lesions of the patella in a child of 11 years. J. MADIER and P. BANZET. *Bull. et mém. Soc. anat. de Par.*, 1923, xciii, 246.

An apparently hitherto unknown disease of the patella. S. JOHANSSON. *Ztschr. f. orthop. Chir.*, 1922, xliii, 82. [387]

Exostosis of the tibia. G. P. GRIGSBY. *Kentucky M. J.*, 1923, xxi, 295.

The foot—a clinical lecture. J. A. NUTTER. *Canadian M. Ass. J.*, 1923, xiii, 387.

The static of the human arch when subjected to body weight. H. L. DUNN. *Mil. Surgeon*, 1923, lii, 567.

Limitation of flexion of the foot through shortened calf muscles and its non-surgical correction. O. F. SCHUSTER. *Med. Times*, 1923, li, 138.

A case of supernumerary toe inserted in the heel. S. CRAINZ. *Chir. d. organi di movimento*, 1923, vii, 200.

An anatomical and clinical study of metatarsus varus. J. MADIER and R. MASSART. *Bull. et mém. Soc. anat. de Par.*, 1923, xciii, 119.

Surgery of the Bones, Joints, Muscles, Tendons, Etc.

The obliteration of bone cavities in chronic osteomyelitis by free fat transplantation. G. R. DUNN. *Minnesota Med.*, 1923, vi, 379.

The ideal bone graft as determined by experimental investigations. S. L. HAAS. *Surg. Clin. N. Am.*, 1923, iii, 761.

Observations on the treatment of subacute and chronic arthritis with milk injections. C. DE COURCY. *Ohio State M. J.*, 1923, xix, 416.

The treatment of contraction of muscles caused by local ischaemia through free transplantation of muscles. R. GOEBELL. *Deutsche Ztschr. f. Chir.*, 1923, clxxvii, 106.

Primary cineplastic utilization of the antebrachial stump. G. d'AGATA. *Chir. d. organi di movimento*, 1923, vii, 104.

A new sacro-iliac support. J. M. BERRY. *Surg., Gynec. & Obst.*, 1923, xxxvi, 835.

Transference of the crest of the ilium for flexion contracture of the hip. W. C. CAMPBELL. *South. M. J.*, 1923, xvi, 289. [387]

Two cases of bone graft for pseudarthrosis of the neck of the femur. BÉRARD. *Lyon chir.*, 1923, xx, 119.

Pseudarthrosis of the right limb; sliding graft; recovery. P. HALLOPEAU. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 712.

Tendon transplantation in the lower extremity. O. L. MILLER. *South. M. & S.*, 1923, lxxv, 298.

Cuneiform osteotomy for ankylosis of the knee. CADÉ-NAT. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 709.

The treatment of tuberculous osteo-arthritis of the knee. DUPONCHEL. *Bull. et mém. Soc. anat. de Par.*, 1923, xciii, 50.

Internal derangements of the knee joint: a new method of exposure. A. G. T. FISHER. *Lancet*, 1923, cciv, 945. [390]

Excision of the knee joint. J. F. COWAN. *Surg. Clin. N. Am.*, 1923, iii, 633.

The technique of knee excision and bone suture. W. I. BALDWIN. *Surg. Clin. N. Am.*, 1923, iii, 711.

The treatment of the flail ankle: panastragaloid arthrodesis. A. STEIDLER. *J. Bone & Joint Surg.*, 1923, v, 284. [391]

Arthrodesis of the ankle. T. R. DE MATA. *Rev. españ. de cirug.*, 1922, iv, 494. [391]

The danger of large cavities in the treatment of tuberculous osteitis of the calcaneum. E. SORREL and G. AUDET. *Bull. et mém. Soc. anat. de Par.*, 1923, xciii, 36.

Fractures and Dislocations

The longevity of plates and other foreign bodies in the treatment of fractures of long bones. M. BEHREND. *Atlantic M. J.*, 1923, xxvi, 585.

Bone grafts. L. BÉRARD. *Bruxelles-méd.*, 1923, iii, 497. [391]

Fractures in transplanted bone. S. L. HAAS. *Surg., Gynec. & Obst.*, 1923, xxxvi, 749.

The technique of the operative reduction in old luxations of the shoulder. L. BAZY. *J. de chir.*, 1923, xxi, 145. [392]

Four cases of fracture of the external condyle of the humerus: reposition or removal? H. L. ROCHER. *Rev. d'orthop.*, 1923, xxx, 213.

Isolated fractures of the condyle of the humerus. CLAVELIN. *Rev. de chir.*, Par., 1923, xlii, 5.

The rational treatment of fractures of the upper end of the humerus: report of end-results. J. W. SEVER. *J. Am. M. Ass.*, 1923, lxxx, 1603.

Vicious union of fracture of the humerus successfully treated with a bone peg. DENIKER. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 791.

Compound posterior dislocation of the elbow. E. BUTLER. *Surg. Clin. N. Am.* 1923, iii, 831.

Wire circling of the olecranon by a new method. A. HANNECART. *Arch. franco-belges de chir.*, 1923, xxvi, 199. [392]

Fractures of the forearm. W. H. COLE. *Minnesota Med.*, 1923, vi, 390.

Marginal fracture of the head of the radius. G. FERRY. *Bull. et mém. Soc. anat. de Par.*, 1923, xciii, 28.

Epiphyseal fracture of the head of the radius. G. FERRY. *Bull. et mém. Soc. anat. de Par.*, 1923, xciii, 30.

Fracture-dislocations of the carpal bones. E. B. TOWNE. *Surg. Clin. N. Am.*, 1923, iii, 741. [392]

Dislocation of the semilunar bone. H. A. LEDIARD. *Edinburgh M. J.*, 1923, n.s. xxx, 244.

Subtotal luxation of the retrolunar carpus. FERRARI and VERGOZ. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 745.

Fractures of the base of the first metacarpal. IMBERT and COTTALORDA. *Presse méd.*, Par., 1923, xxxi, 573.

Traumatic luxations of the spine. A. DHALLUIN. *Arch. franco-belges de chir.*, 1923, xxci, 97. [393]

Fractured spine; consideration of the practical care and treatment. W. C. G. KIRCHNER. *Surg., Gynec. & Obst.*, 1923, xxxvi, 830.

Rupture of the bladder in fractures of the pelvis. SANTY. *Lyon chir.*, 1923, xx, 263.

Notes on the treatment of compound fractures of the extremities. W. H. BYFORD. *Illinois M. J.*, 1923, xliii, 452.

The late results of the reduction of congenital dislocation of the hip. E. E. ANDERSEN. *Bibliot. f. Læger*, 1922, cxiv, 401.

Fractures about the hip joint. C. C. CHATTERTON. *Minnesota Med.*, 1923, vi, 387.

Pathological fracture of the neck of the femur. I. ZADEK. *Ann. Surg.*, 1923, lxxvii, 689.

The autogenous peg graft in certain fractures of the femur. W. MERCER. *Brit. M. J.*, 1923, i, 1088.

A preliminary report of a new method of treating fractures of the neck of the femur. E. D. MARTIN and A. C. KNIGHT. *N. Orleans M. & S. J.*, 1923, lxxv, 710.

Fractures of the femur in children. C. G. BURDICK and I. E. SIRIS. *Ann. Surg.*, 1923, lxxvii, 736.

The treatment of fresh fracture of the shaft of the femur. R. EARL. *Minnesota Med.*, 1923, vi, 383.

Congenital backward dislocations of the knee. HARTMANN-KEPEL. *Rev. d'orthop.*, 1923, xxx, 205.

Non-operative treatment of displaced semilunar cartilages. D. GRAHAM. *Ann. Surg.*, 1923, lxxvii, 729.

Fractures near the ankle. W. L. ESTES, JR. *Atlantic M. J.*, 1923, xxvi, 592.

Tarsal luxation; bloodless reduction. E. DELANNOY. *Bull. et mém. Soc. anat. de Par.*, 1923, xciii, 345.

Internal luxation of the great toe. MOUCHET and GUILLERMIN. *Bull. et mém. Soc. anat. de Par.*, 1923, xciii, 34.

Orthopedics in General

Managing orthopedic cases. M. CONSTANTINE and B. W. MOFFAT. *Trained Nurse & Hosp. Rev.*, 1923, lxx, 405. [393]

The treatment of inequality of length in the lower limbs. N. D. ROYLE. *Med. J. Australia*, 1923, i, 716.

SURGERY OF THE BLOOD AND LYMPH SYSTEMS

Blood Vessels

The activity of the capillary blood vessels and its relation to certain forms of toxæmia. H. H. DALE. *Brit. M. J.*, 1923, i, 1006.

Pulmonary thrombophlebitis as a source of embolism in the greater circulation. C. OBERLING. *Bull. et mém. Soc. anat. de Par.*, 1923, xciii, 91.

Three cases of embolectomy. P. HAEGGSTROEM. *Upsala Laekaref. Foerh.*, 1922, xxviii, 107.

Four cases of ligature of the common carotid. P. HARDOUEIN. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 774.

The left azygos system. MUTEL and FOURCHÉ. *Bull. et mém. Soc. anat. de Par.*, 1923, xciii, 11.

Aortic aneurism with spontaneous pneumothorax; report of a case. C. F. ANDERSON and H. W. RETAN. *Ohio State M. J.*, 1923, xix, 397.

Aneurism of the arch of the aorta associated with aneurism of the common carotid artery. M. RADY. *Canadian M. Ass. J.*, 1923, xiii, 435.

Aneurism of the abdominal aorta simulating a duodenal syndrome. C. LAUBRY and D. ROUTIER. *Bull. et mém. Soc. méd. d. hôp. de Par.*, 1923, 3s. xxxix, 662.

Calcereous degeneration of the dorsal and lumbar aorta as a cause of backache. J. RIDLON and E. J. BERKHEISER. *J. Am. M. Ass.*, 1923, lxxx, 1831.

Aneurism of the common iliac artery: gradual occlusion by ligation with a free graft of muscle. L. ELOESSER. *Surg. Clin. N. Am.*, 1923, iii, 681. [395]

Double superior mesenteric artery. E. DELANNOY. *Bull. et mém. Soc. anat. de Par.*, 1923, xciii, 346.

The anatomy, clinical aspects, and treatment of aneurism of the superior mesenteric artery. L. KOLIN. *Arch. f. klin. Chir.*, 1923, cxxiii, 684. [395]

Thrombosis of the superior mesenteric vessels and volvulus of the small intestine. D. H. ORGEL. *N. York M. J. & Med. Rec.*, 1923, cxvii, 695.

A case of thrombosis of the portal vein complicated by perihepatitis and adhesive peritonitis. HATZEGANU and SIARTEU. *Bull. et mém. Soc. méd. d. hôp. de Par.*, 1923, 3s. xxxix, 747.

A case of ruptured aneurism of the splenic artery. W. R. SMITH. *J. Am. M. Ass.*, 1923, lxxx, 1692.

Observations on thrombus of the pelvis and lower extremities. H. F. GAMBLE. *J. Nat. M. Ass.*, 1923, xv, 99.

Embolectomy as a method of treatment of disturbances of the circulation from embolism in the extremities. E. KEY. *Lyon chir.*, 1923, xx, 1.

Aneurism of the popliteal artery secondary to exostosis of the lower end of the femur. C. CLAVELIN. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 686.

A wound of the femoral artery and vein. C. P. GROVER and D. FISHER. *Ann. Surg.*, 1923, lxxviii, 84.

Trophic disturbances of the lower limb after ligation of the femoral artery. P. MOURE. *Bull. et mém. Soc. anat. de Par.*, 1923, xciii, 170.

Arteriovenous aneurism of the superficial femoral vessels from a stab wound. BAZY, BRAINE, and SURUN. *Bull. et mém. Soc. anat. de Par.*, 1923, cxiii, 46.

Rupture of the deep femoral artery in a patient with infective endocarditis. J. MACNAMARA. *Med. J. Australia*, 1923, i, 724.

Contribution to the surgery of the blood vessels. J. GOYANES. *Med. Ibera*, 1923, vii, 481.

Can drainage tubes cause erosion of blood vessels? L. SCHOENBAUER and E. GOLD. *Arch. f. klin. Chir.*, 1923, cxxiii, 43. [396]

Simultaneous ligation of a vein and artery: an experimental study. B. BROOKS and K. A. MARTIN. *J. Am. M. Ass.*, 1923, lxxx, 1678.

Blood and Transfusion

Investigations on the blood sugar in man. Conditions of oscillations, rise, and distribution. K. M. HANSEN. *Acta med. Scand.*, 1923, supp. iv.

Studies on the bile and biliary diseases. S. F. OLIVER. *Cincinnati J. M.*, 1923, iv, 186.

The determination of bile salts in the blood. S. TASHIRO. *Cincinnati J. M.*, 1923, iv, 197.

The relation between blood destruction and the output of bile pigment. G. O. BROUN, P. D. McMASTER, and P. ROUS. *J. Exper. Med.*, 1923, xxxvii, 733.

The technique of blood-plate counting in man. R. G. BANNERMAN. *Lancet*, 1923, cciv, 1154.

A series of cases of purpura hæmorrhagica and aplastic anemia due to chronic benzol poisoning in a canning plant. H. B. ANDERSON, J. S. BOYD, and A. B. JACKSON. *Canadian M. Ass. J.*, 1923, xiii, 395.

The inherited and constitutional pathology of hæmophilia. K. H. BAUER. *Deutsche Ztschr. f. Chir.*, 1922, clxxvi, 109. [396]

Recent research on the blood groups. J. MOUZON. *Presse méd., Par.*, 1923, xxxi, 541.

On the inheritance of the specific iso-agglutinable substances of human red cells; with a note on the possible existence of a lethal factor. S. C. DYKE, D. P. H. OXON, and C. H. BUDGE. *Proc. Roy. Soc. Med., Lond.*, 1923, xvi, Sect. Path., 35. [396]

Transfusion of blood. C. WILLIAMS. *Virginia M. Month.*, 1923, i, 168.

A simple blood transfusion. H. M. CLUTE. *Boston M. & S. J.*, 1923, clxxxviii, 948.

Observations on the transfusion of blood. D. S. ADAMS. *Boston M. & S. J.*, 1923, clxxxviii, 949.

Autotransfusion. L. E. BURCH. *Surg., Gynec. & Obst.*, 1923, xxxvi, 811.

The intravital course of hæmolysis, with a discussion of blood transfusion and the development of shock from transfusion. W. JANTZEN. *Klin. Wchnschr.*, 1923, ii, 129. [396]

Intraperitoneal transfusion with citrated blood: a clinical study. D. M. SIPERSTEIN. *Am. J. Dis. Child.*, 1923, xxv, 202. [397]

Clinical and experimental research in blood transfusion. L. NUERNBERGER. *Zentralbl. f. Gynaek.*, 1922, xlii, 1945.

The classification of blood diseases in childhood. G. WARD. *Brit. J. Child. Dis.*, 1923, xx, 84.

A case of lymphæmia. A. E. RUSSELL, L. S. DUDGEON, and A. L. URQUHART. *Lancet*, 1923, cciv, 1308.

Studies upon the relation of tetanus bacilli in the digestive tract to tetanus antitoxin in the blood. C. TEN BROECK and J. H. BAUER. *J. Exper. Med.*, 1923, xxxvii, 479. [397]

Lymph Vessels and Glands

Elephantiasis: a clinical review and an attempt at experimental reproduction. G. D. MAHON. *Am. J. M. Sc.*, 1923, clxv, 875.

A syndrome in a monkey (*cynocephalus sphinx*) similar to that which characterizes chronic lymphatic leukæmia in man. A. C. MASSAGLIA. *J. Lancet*, 1923, xliii, 277; *Lancet*, 1923, cciv, 1056.

SURGICAL TECHNIQUE

Operative Surgery and Technique; Postoperative Treatment

The efficient surgeon. R. BASTIANELLI. *Surg., Gynec. & Obst.*, 1923, xxxvi, 762.

Surgical judgment. J. H. GIBBON. *Illinois M. J.*, 1923, xliii, 424.

The treatment of shotgun wounds. G. H. BUNCH. *South. M. & S.*, 1923, lxxxv, 308.

Drainage. G. P. MYERS. *Internat. J. Surg.*, 1923, xxxvi, 241.

The prevention of postoperative shock. MISRACHI. *Presse méd., Par.*, 1923, xxxi, 565.

Hæmatoma and abscess of the sheaths of the recti after laparotomy by Pfannenstiel's incision. P. BONNET and L. MICHON. *Presse méd., Par.*, 1923, xxxi, 477.

Antiseptic Surgery; Treatment of Wounds and Infections

Static electricity in the treatment of non-infected inflammation. W. B. SNOW. *N. York M. J. & Med. Rec.*, 1923, cxviii, 37.

Wound diphtheria. C. ULHORN. *Arch. f. klin. Chir.*, 1923, cxxiii, 833.

A report on four cases of tetanus in children. J. W. GRIEVE, R. SOUTHEY, H. L. STOKES, and B. L. STANTON. *Med. J. Australia*, 1923, i, 555.

Combination treatment of tetanus. A. BUZZELLO. *Ztschr. f. aerztl. Fortbild.*, 1922, xix, 427. [398]

Surgical treatment of burn scars. G. W. PIERCE. *Surg. Clin. N. Am.*, 1923, iii, 841.

Anæsthesia

Rigidity under general anæsthesia. J. D. MORTIMER. *Med. Press*, 1923, n.s. cxv, 474.

General anæsthesia in dental surgery. W. J. McCARDIE. *Proc. Roy. Soc. Med., Lond.*, 1923, xvi, Sect. Anæst., 11.

Four hundred and fifty major operations under local anæsthesia. J. WIENER. *Internat. J. Surg.*, 1923, xxxvi, 196.

Methylene chloride in anæsthesia. W. BOURNE and R. L. STEHLE. *Canadian M. Ass. J.*, 1923, xiii, 432.

Cases of difficulties due to important points having been missed at the preliminary examination. A. L. FLEMING. *Proc. Roy. Soc. Med., Lond.*, 1923, xvi, Sect. Anæst., 9.

A case of cardiac arrest under an anæsthetic followed by heart massage. E. S. ROWBOTHAM. *Proc. Roy. Soc. Med., Lond.*, 1923, xvi, Sect. Anæst., 5.

Ethyl chloride as an anæsthetic for minor operations in children. S. F. ROSE. *Lancet*, 1923, cciv, 1258.

Laryngeal intubation in anæsthetics. S. ROWBOTHAM. *Brit. M. J.*, 1923, i, 1090.

The effects of vagal trauma on the anæsthetized patient. C. L. HEUER. *Proc. Roy. Soc. Med., Lond.*, 1923, xvi, Sect. Anæst., 7.

Local anæsthesia. O. D. KING. *U.S. Naval M. Bull.*, 1923, xviii, 693.

A new local anæsthetic. A. LECERF. *Presse méd., Par.*, 1923, xxxi, 486.

Experiences with splanchnic anæsthesia. E. KUTSCHALLISSBERG. *Wien. klin. Wchnschr.*, 1923, xxxvi, 216.

Surgical Instruments and Apparatus

A new hæmostatic forceps. W. B. McWHORTER. *South. M. J.*, 1923, xvi, 490.

PHYSICO-CHEMICAL METHODS IN SURGERY

Roentgenology

Stimulation and paralysis of animal cells by means of the roentgen ray. II. Experimental research on the growing bones of rabbits and cats. V. HOFFMAN. *Strahlen-therapie*, 1922, xiv, 516.

Studies of the effect of the X-rays on glandular activity. A. C. IVY, B. H. ORNDORFF, A. JACOBY, and J. E. WHITLOW. *J. Radiol.*, 1923, iv, 189. [398]

Practical roentgen-spectrometry and its physical basis. K. STAUNIG. *Am. J. Roentgenol.*, 1923, x, 479.

Comparative measurements of intensity and hardness of X-rays produced by different types of American transformers. A. BACHEM. *J. Radiol.*, 1923, iv, 202.

Standardization of ionization measurements of intensity. T. L. WEATHERWAX and E. T. LEDDY. *Am. J. Roentgenol.*, 1923, x, 488.

The technique of oral radiography. C. O. SIMPSON. *Internat. J. Orthodont., Oral Surg. & Radiography*, 1923, ix, 471.

A review of the present status of deep roentgen therapy. G. HOLZNECHT. *Am. J. Roentgenol.*, 1923, x, 476.

Further observation in the use of high voltage X-ray. R. H. MILLWEE. *South. M. J.*, 1923, xvi, 427.

High voltage X-ray therapy: six months' experience. S. MOORE. *South. M. J.*, 1923, xvi, 430.

Our experience in the use of deep therapy, 200 kilovolts or more. D. Y. KEITH and J. P. KEITH. *South. M. J.*, 1923, xvi, 435.

Deep X-ray therapy. PILGER. *Arch. Radiol. & Electrotherapy*, 1923, xxvii, 364. [398]

The blood with deep roentgen-ray therapy: hydrogen concentration, alkali reserve, sugar, and non-protein nitrogen. E. F. HIRSCH and A. J. PETERSEN. *J. Am. M. Ass.*, 1923, lxxx, 1505. [399]

The association of the X-ray and the violet ray in the treatment of tuberculous adenitis. J. SAIDMAN and R. ROBINE. *Bull. et mém. Soc. méd. d. hôp. de Par.*, 1923, 35. xxxix, 622.

Notes on two cases of erythræmia treated by the X-rays. E. J. STOLKIND. *Lancet*, 1923, cciv, 1312.

Radium

Some dermatological and radiological observations. C. H. BALL. *J. Oklahoma State M. Ass.*, 1923, xvi, 185.

The use of radium in the treatment of disease. D. TURNER. *Brit. M. J.*, 1923, i, 464. [400]

The problem of malignant disease, with special reference to radium therapy. H. M. MORAN. *Med. J. Australia*, 1923, i, 632.

Radium and surgery. W. H. B. AIKENS. *Internat. J. Surg.*, 1923, xxxvi, 189. [401]

Miscellaneous

Heliotherapy and helio-hygiene. C. W. SALEEBY. *Med. Press*, 1923, n.s. cxv, 478.

Further indications for intensive heliotherapy. H. REH. *Strahlentherapie*, 1922, xiv, 715. [401]

Electrotherapy, or what the physician can do and should do for chronics. J. E. G. WADDINGTON. *J. Michigan State M. Soc.*, 1923, xxii, 273.

Electrocoagulation and some of its uses. T. H. PLANK. *Am. J. Clin. Med.*, 1923, xxx, 403.

The treatment of certain forms of cancer by electrocoagulation. J. RICO. *Repert. de med. y cirug.*, 1923, xiv, 250.

Surgical diathermy in its relation to radiotherapy. G. KOLISCHER and H. KATZ. *J. Radiol.*, 1923, iv, 76. [402]

MISCELLANEOUS

Clinical Entities—General Physiological Conditions

Early and late lesions due to electric injuries. O. J. FAY. *J. Iowa State M. Soc.*, 1923, xiii, 239.

Epidermal cyst of the finger. BOPPE. *Bull. et mém. Soc. anat. de Par.*, 1923, cxiii, 143.

The treatment of leprosy. W. DUBREUILH. *J. de méd. de Bordeaux*, 1923, xcv, 151. [403]

Hodgkin's disease with glandular and pulmonary localization apparently cured by deep radiotherapy. P. JACOB. *Bull. et mém. Soc. méd. d. hôp. de Par.*, 1923, 35. xxxix, 668.

Diabetic gangrene and its treatment. S. WESTMANN. *Ztschr. f. aerztl. Fortbild.*, 1923, xx, 137. [403]

Granguloma inguinale (ulcerating granuloma, serpiginous ulceration of the genitals, ulcerating granuloma of the pudenda, etc. M. WEINBERG. *J. Urol.*, 1923, ix, 505.

Two new synthetic antimony compounds in cases of granuloma inguinale. A. RANDALL. *J. Urol.*, 1923, ix, 491.

Bismuth paste tumors. F. L. LEDERER. *Surg., Gynec. & Obst.*, 1923, xxxvi, 815.

A consideration of known factors in the causation of neoplasms. B. T. SIMPSON and H. R. GAYLORD. *Internat. J. Surg.*, 1923, xxxvi, 237.

Pathologic cartilaginous new growths. A. POLICARD and R. LERICHE. *Presse méd., Par.*, 1923, xxxi, 561.

A congenital cystic sacrococcygeal tumor. F. CHATILLON. *Rev. franç. de gynéc. et d'obst.*, 1923, xviii, 264.

The coexistence of four different and independent tumors in the same patient. OBERLING and WOLF. *Bull. et mém. Soc. anat. de Par.*, 1923, xciii, 219.

Studies based on a malignant tumor of the rabbit. I. The spontaneous tumor and associated abnormalities. W. H. BROWN and L. PEARCE. *J. Exper. Med.*, 1923, xxxvii, 601. [403]

Studies based on a malignant tumor of the rabbit. III. Intratesticular transplantation and clinical course of the disease. W. H. BROWN and L. PEARCE. *J. Exper. Med.*, 1923, xxxvii, 799.

Studies based on a malignant tumor of the rabbit. IV. The results of miscellaneous methods of transplantation, with a discussion of factors influencing transplantation in general. L. PEARCE and W. H. BROWN. *J. Exper. Med.*, 1923, xxxvii, 811.

The influence of inorganic salts upon tumor growth in albino rats. K. SUGIURA and S. R. BENEDICT. *J. Cancer Research*, 1922, vii, 329. [404]

Recent cancer therapy. F. C. WOOD. *Canadian M. Ass. J.*, 1923, xiii, 152. [404]

The future surgery of cancer. SEMPRÚN. *Rev. españ. de cirug.*, 1922, iv, 478. [405]

Chorio-epithelioma in a man. T. VASILIU. *Bull. et mém. Soc. anat. de Par.*, 1923, xciii, 355.

The major infections. W. J. MAYO. *J. Iowa State M. Soc.*, 1923, xiii, 233.

A case of hydatid disease. H. C. LEES and J. RAMSEY. *Lancet*, 1923, cciv, 1107.

Ductless Glands

The present status of endocrine therapy. B. A. COBUE. *Atlantic M. J.*, 1923, xxvi, 602.

An appraisal of endocrinology. A. G. HOSKINS. *North-west Med.*, 1923, xxii, 237.

Surgical Pathology and Diagnosis

The significance of the Wildbolz auto-urine reaction in tuberculosis, with a report of 100 cases. M. S. LEWIS. *Am. J. M. Sc.*, 1923, clxv, 890.

Experimental Surgery

The action of serum on fibroblasts in vitro. A. CARREL and A. H. EBLING. *J. Exper. Med.*, 1923, xxxvii, 759.

Hospitals; Medical Education and History

Fly traps for hospital kitchens. *Trained Nurse & Hosp. Rev.*, 1923, lxx, 528.

INTERNATIONAL ABSTRACT OF SURGERY

NOVEMBER, 1923

ABSTRACTS OF CURRENT LITERATURE SURGERY OF THE HEAD AND NECK

HEAD

Blair, V. P., and Padgett, E. C.: *Pyogenic Infection of the Parotid Glands and Ducts.* *Arch. Surg.*, 1923, vii, 1.

Acute suppurative parotitis is generally an infection ascending from the duct which is associated with a decrease in the salivary flow, fever, and deterioration of the general health. In all cases of severe septic parotitis associated with obstruction not due to stones, early drainage is beneficial.

The fifty cases reported by the authors are divided into two groups: (1) primary acute inflammation of the gland; (2) primarily recurrent symptoms of duct obstruction.

In Group 1 there were thirty-five cases of acute pyogenic parotitis characterized by sudden onset, severe local pain, marked swelling (first of the gland and later becoming a rapidly extending cellulitis of the neck, head, and face), and the general symptoms of a severe infection with chills and fever. As the infection spread, oedema closed the eye (five cases), involved the neck down to the clavicle (two cases), extended to the breast (one case), extended backward over the mastoid process (four cases), or encroached on the pharynx and threatened the air passages (one case). During the stage of acute swelling one patient died from what appeared to be oedema of the glottis.

Less often the disease was associated with only slight local enlargement, a mild rise in the temperature, and moderate pain. Evidence of duct infection varied from a minute red protrusion of the duct mucosa at the papilla to the exudation from the duct of a string of cloudy mucus or pus. Sometimes both were present. Six patients became delirious; four had convulsions; three, uræmia; one, involvement of the seventh nerve; and several, a spasm of the muscles of mastication which prevented opening of the mouth. The disease was practically always secondary to, or appeared as a complication of, an injury, a postoperative state, some acute or chronic

illness, or a terminal condition. When once relieved it showed little tendency to recur. It was more frequent in adults (twenty-six cases), especially after the third decade of life (seventeen cases), in females (twenty-four cases) than in males, and during the winter months when respiratory infections are more common than in the summer months. The organism responsible was usually the staphylococcus. In one case the pneumococcus was found. Streptococcus infection was extremely severe, and in one instance caused death.

Mild cases were treated only with hot or cold applications. More severe cases in which the condition was not terminal were operated upon as soon as it became evident that the infection would not subside spontaneously. In doubtful cases the gland was opened not later than the second twenty-four hours. The authors consider it a more serious error to delay operation too long than to incise the gland unnecessarily. The purpose of operation is to prevent gangrene and suppuration.

The incision is begun 2 cm. anterior to the ear at the lower border of the zygoma and extended back to the ear, downward to behind and below the angle of the jaw, and just through the capsule. A flap of skin and fascia is pulled forward with sharp rake retractors, the capsule is stripped from the entire gland, and the parenchyma is punctured and torn in many places. The facial nerve, which lies deep, is safeguarded by puncturing the gland with blunt forceps. The whole gland must be exposed and explored. The portions behind the lobe of the ear and along the origin of Stenson's duct are the ones which are often missed. The wound is packed wide open with gauze and bandaged with pressure. The wound closes spontaneously, and noticeable scarring is prevented as most of the incision lies in the angle at the juncture of the cheek and the ear. Repuncture may be necessary if the original exposure is incomplete.

After the operation the relief of symptoms is almost immediate.

In three cases a salivary fistula developed after incision. Of the thirty-five patients, fifteen (42.8 per cent) died. In eight cases the condition was mild and required no treatment. In eight others there were terminal complications and no treatment was given. In sixteen cases operated upon there were eleven recoveries and five deaths. The lives of three patients were saved by operation. Eight were benefited and their convalescence was shortened. Three were fatally ill when the parotitis developed.

In the cases of Group 2, parotitis associated with obstruction, the obstruction was due to swelling and thickening of the mucosa, a plug of mucus lodged at the meatus, inflammatory constriction, or a stone formed within the duct. The condition was characterized by exacerbations of moderate local pain and swelling, often more pronounced when food was taken or thought of, and sometimes with general symptoms of a mild infection. The acute signs of the first group were rarely noted. Complete obstruction of the duct resulted in atrophy of the entire gland.

Exacerbations were frequently related to acute infections in the mouth and nasopharynx. Usually there was some inflammatory disturbance of the duct. During the attacks the saliva often contained thick mucus, and occasionally this was cloudy or semipurulent. As a rule changes in the saliva were associated with symptoms of a mild infection. In one case a stone in the duct was felt with a probe, and in another was felt under the skin with the finger. All large stones were shown by the X-ray. When the pain was due only to back-pressure of the saliva there were no constitutional symptoms. In several cases chronic incomplete obstruction was followed by induration of the gland. Intraglandular abscess developed in five cases; in four it was single, in one double, in none miliary. In no case was life threatened. Chronic obstructive parotitis may occur at any age, and usually develops without preceding or accompanying severe or debilitating illness. In three cases, however, it followed a "cold," in one the extraction of a tooth, in one an attack of tonsillitis, and in one a tonsillectomy.

The treatment consisted in the control of the infection of the mouth and nasopharynx and the relief of the obstruction to the saliva. The removal of stones resulted in complete recovery. Obstruction due to acute swelling of the mucous lining of the duct or to mucus was often temporarily relieved by dilating with a probe, but occasionally a severe reaction followed the use of the probe. In cases without stone and when probe dilatation fails to give permanent relief, the authors favor slitting the meatus and suturing the epithelial lining to the mucous membrane of the mouth. A probe or probe scissors is passed into the duct and the duct is slit for $\frac{1}{4}$ in. Three stitches of fine silk, one at the apex and one on each side, are usually sufficient. In one case, in which Stenson's duct was situated close to the gingiva of the upper second molar, recovery resulted after transplantation and splitting.

In addition to the two groups of cases described, the authors' series included one case of questionable tuberculosis, two of abscess of both parotid papillæ and syphilis, three of insufficient secretion, four of functional nervous derangement, and five of congenitally large parotid. WALTER C. BURKET, M.D.

Woodman, E. M.: Malignant Disease of the Upper Jaw: with Special Reference to Operative Technique. *Brit. J. Surg.*, 1923, xi, 153.

Woodman classifies malignant neoplasms of the upper jaw according to their site of origin as follows: (1) palate and alveolus, (2) air sinuses, (3) epipharynx, with invasion of the jaw, and (4) cheek, with invasion of the maxilla.

With regard to the value of radium, the X-ray, and diathermy in the treatment of such growths the author is not very enthusiastic. With regard to the surgical treatment he states that the operation must be modified according to the site and extent of the growth. There are certain classes of cases which are generally inoperable: (1) sarcoma arising from the base of the skull and secondarily involving the maxilla, (2) extensive involvement of the pterygo-maxillary fossa, (3) cases showing persistent meningial infection, and (4) extensive invasion of the back of the eye suggesting involvement of the cavernous sinus.

In operable cases the operation is performed with the patient in the upright position, and intratracheal anæsthesia is induced with ether. The incision is begun in the center of the eyebrow and carried downward midway between the bridge of the nose and the inner canthus of the eye, then along the line of Ferguson's incision down to the groove at the side of the nose, around the external naris to reach the philtrum, and then through the lip. On the buccal surface of the cheek the greatest care is taken to divide the mucosa low down, immediately above the neck of the teeth, and to elevate it throughout the entire length of the incision. In this manner it is possible to save a considerable portion of harmless mucous membrane which can be sutured in position to the raw area on the inner side of the reflected cheek. The cheek flap is then drawn aside and care is taken to carry the knife down through the periosteum to the bone, particularly on the inner side of the nose. If the growth has extended backward, and especially if its base is in the pterygoid muscles, it is necessary to make use of the horizontal incision beneath the orbit, but this is avoided if possible. The cheek flap is protected from infection during the removal of the growth, and the raw surface is swabbed with tincture of benzoin and protected with a small gauze pad soaked in the solution and sutured into position. The subsequent steps depend upon the nature, origin, and extent of the growth.

If the growth is confined to the lower half of the superior maxilla and does not involve the upper air sinuses, the lower part of the upper jaw is removed, the infra-orbital plate being left intact. To do this,

a horizontal incision is made following and parallel with the lower margin of the orbit at about the level of the infra-orbital foramen, carried through the ascending nasal process of the superior maxilla into the nose, and through the body of the malar bone to the pterygomaxillary fossa. The line of attachment of the cartilages of the nose to the bone is then divided, and if the nose is not involved the mucoperiosteum can be easily elevated and the soft parts of the nose turned inward without opening the cavity. The hard palate is then divided sagittally from the alveolar process backward. The separation is completed by detaching the soft palate by a horizontal incision and separating the back of the maxilla from the pterygoid process by driving a strong osteotome in between them. This partial incision, when it is adequate, gives very satisfactory anatomical results; the orbital cavity is not opened, and there is no dropping of the eye with consequent failure of alinement. The nasal cavity also is unopened and its important functions remain intact. The procedure is suitable for most growths arising from the palate and alveolus, even when they have perforated the antrum, provided their limitations can be accurately seen and delineated.

When the malignant changes have involved the upper air sinuses or the orbit, a most extensive exposure is necessary to eliminate the disease. First of all the upper jaw and the entire side wall of the nose must be removed. Only too often this procedure is considered sufficient for the removal of the growth, but it cannot be too strongly emphasized that it is only one stage in the exposure of the deeper and more delicate parts around the skull base.

It is impossible to remove such a growth in one piece without breaking across various extensions. The entire ethmoid up to the cribriform plate should be systematically removed, the sphenoid then opened, the anterior and inferior walls of the sinus cleared away, and the contents exenterated. The frontal sinus must be dealt with in a similar manner. The duct should be traced upward and all the fronto-ethmoidal cells and the floor of the frontal sinus removed. As it is never advisable or necessary to remove the anterior wall, considerable deformity is prevented and infection of the diploic veins is avoided. Several cases of osteomyelitis have been recorded as the result of Killian's method of exposing this sinus. If possible, an endeavor should be made to leave the periosteum of the orbital cavity intact, but everything must be done to assure the complete eradication of the growth. Special attention must be paid to the fat and muscle of the pterygomaxillary fossa. A common extension of the growth is backward through the internal naris into the pharynx, where it lies free in the cavity. Extension into the pterygoid fossa is regarded as the most difficult to remove and one of the most frequent causes of recurrence. After perforating the thin posterior wall of the antrum, the growth enters a highly vascular region and spreads rapidly between the fasciculi and planes of the pterygoid

muscle into a region which is difficult to approach by operation. After healing takes place, there is often a residual fibrosis in these muscles which leads to considerable difficulty in opening the mouth.

At the conclusion of the complete operation, the frontal sinus, the sphenoid, and the cribriform plate lie freely exposed and form one large cavity leading to the mouth below and limited internally by the septum of the nose and externally by the replaced cheek flap.

OTTO M. ROTT, M.D.

Hegedues, Z.: The Rebuilding of the Alveolar Processes by Bone Transplantation. *Dental Cosmos*, 1923, lxx, 736.

A piece of bone transplanted with its periosteum into the alveolar processes will grow very readily. It will grow even in bone long infected with pyorrhœa. The tendency toward healing is better in the mouth than anywhere else in the body. In the majority of the author's cases primary healing occurred.

In the first attempts the transplant was taken from the maxilla or the mandible. Later it was obtained from the tibia.

Before operation the degree of pyorrhœa and the number of teeth over which it extends must be determined. The teeth must be temporarily fixed with a wire ligature figure of eight or Schroeder's splint and arch. The occlusion should be taken care of by closing the teeth together to avoid a change in their position. The technique of the operation is as follows:

Under anæsthesia a transplant is obtained from the crest of the tibia of the desired shape and size, 1 cm. wide and not thicker than 1 mm. Care is taken to prevent injury to the periosteum. A bed is made in the jaw after Neumann's unfolding operation. A flap is folded back and the preparation carried past the transition fold. If this is done well, the gum can be raised and sewed back to the original height. The roots are cleaned, the softened bone is removed down to sound bone, and the sound bone is freshened with fine strokes of the chisel. The transplant is fixed with one or two stitches of catgut and the lateral incisions in the inter-dental papillæ are joined together.

Strict sterilization is necessary to prevent infection, the mouth must be kept clean after the operation, and a liquid diet must be given for two days.

In one case the gum broke down because of overstretching. Six cases with good results are reported.

MARCUS H. HOBART, M.D.

EYE

Weber, F. P.: A Case of Exophthalmos Probably Caused by Non-Suppurative Cavernous Sinus Thrombosis. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Clin. Sect., 41.

The case reported was that of a woman 28 years of age who, when first seen five months after an

attack of quinsy, sought treatment for protrusion of the eyes and a chronic discharge. The right eye was most affected at first, but by the time of the examination it had begun to improve and the left eye was becoming worse. The patient became pregnant during the first or second month of the condition, and at term was delivered of a healthy baby. The eye condition persisted until after the termination of the pregnancy, when it slowly cleared up.

The first examination revealed a reddish oedematous swelling of both lids of both eyes, an optic neuritis of the right eye, and an old mitral stenosis. The examination of the nose and throat, a roentgen-ray examination of the skull, sinuses, and pituitary fossa, a blood Wassermann test, a blood count, urinalysis, and an examination of the glands were entirely negative. The left eye was blind, and at a second examination about three months later, bilateral optic neuritis (choked disk), vascular injection of the eyeballs, and conjunctival chemosis were found. Otherwise the condition was much the same as at the previous examination and continued unchanged until the termination of the pregnancy.

On the suggestion of Jenkins, who examined the patient, a probable diagnosis of non-suppurative thrombosis of the cavernous sinuses was made. Jenkins had seen a somewhat similar case and advised against operation.

The left eye remains blind and there is still some protrusion of the eyes with slight optic neuritis of the right eye. Vision is 6/12. The persistence of some of the symptoms may be explained by incomplete canalization of the thrombus.

MANFORD R. WALTZ, M.D.

Gifford, S. R., and Latta, J. S.: Pseudo-Glioma, Vascular Tunic of the Lens. *Am. J. Ophthalm.*, 1923, 3 s. vi, 565.

Gifford and Latta report three cases of opacity of the posterior surface of the lens. In the first case a yellowish reflex from the pupil without inflammation had been noted since birth. The eye was removed for suspected glioma. The entire posterior surface of the lens was found to be covered with a dense mass of thick, white, fibrous connective tissue. In the other cases slit-lamp microscopy showed less dense opacities of the lens.

VIRGIL WESCOTT, M.D.

Ribas Valero, R.: Orbital Cellulitis as Related to Nasal Sinusitis (Celulitis orbitaria, sus relaciones con las sinusitis). *Rev. méd. de Sevilla*, 1923, xlii, 1.

Orbital cellulitis is of two types, the primary, originating in the orbit proper, and the secondary, originating in the surrounding structures and cavities. It may be purulent or non-purulent. The causes of the primary type include trauma, infection of the lachrymal sac, panophthalmitis, unclean operations about the orbit, etc. Causes of the secondary type are sinus infections, thrombosis of ophthalmic veins, and mycotic emboli. The author lays particular stress on the importance of infection of the nasal

accessory sinuses, especially the ethmo-frontal group. The condition may be brought about through a dehiscence or a necrotic area in the sino-orbital wall or by extension through the vascular or lymphatic system.

The usual objective and subjective symptoms are exophthalmos, immobility of the eye, diplopia, swelling and redness of the lids and conjunctiva, and the usual general symptoms of infection such as chills, fever, somnolence, and a rapid pulse.

The condition must be differentiated from orbital thrombophlebitis, suppurative tenonitis, acute orbital osteoperiostitis, and subperiosteal abscess. It terminates either in absorption or the formation of an abscess with evacuation of pus.

The treatment is essentially the removal of the cause, which usually means proper drainage and aeration of the involved sinuses and evacuation of pus either through the nose or externally through an incision in the lids or conjunctiva.

In cases of the non-purulent type vaccines have been used.

STEPHEN A. SCHUSTER, M.D.

Nardin, W. H., and Cunningham, R. S.: Familial Retino-Cerebral Degeneration. *Am. J. Ophthalm.*, 1923, 3 s. vi, 476.

Nardin and Cunningham review twenty-five cases reported in the literature and report five from their own practice which occurred in one family of nine children. In the authors' cases the condition began at about the seventh year of age with impairment of vision and pigmentation of the retina around the macula. Increasing blindness was associated with optic atrophy without increase in the pigment but with a central scotoma increasing in size. Epilepsy began a few years later, and at the age of 12 the mental status was usually that of about 1 year.

The children were examined in 1920 and again two years later. When first seen, one of them, who was 6½ years old, appeared to have beginning degeneration of the retina. This was verified two years later. One child only 4 years of age showed no pigmentation of the retina or other symptoms when first examined, but two years later the blood vessels in one eye were definitely smaller than those in the other and the coats of the eye somewhat "thinner." A pair of twins 18 months of age showed no changes.

In discussing the literature and their own cases the authors suggest that there might be some relationship between amaurotic familial idiocy, the condition they report, and a condition quite similar to it but without cerebral changes which appears at about the age of puberty. In the first class there is degeneration of the ganglion cells of the brain and retina at about the time of the first dentition. In the second class there is a pigmentary change in the retina with vacuolation of the ganglion cells and optic atrophy at the time of the second dentition. In the third type there is simply a degeneration of the retinal elements, particularly the rods and cones, at the time of puberty.

The article is concluded with a discussion of the differentiation between retino-cerebral degeneration, retinitis pigmentosa, and central chorioretinitis.

THOMAS D. ALLEN, M.D.

Appleman, L. F.: Papillitis with Focal Infection. *Am. J. Ophthalm.*, 1923, 3 s. vi, 563.

Appleman reports a case of gradual failure of vision over a period of six years with narrowing of the field of vision and enlargement of the blind spot. The optic disks of both eyes were swollen. After the removal of twelve teeth and the treatment of others the vision again became normal.

VIRGIL WESCOTT, M.D.

Cutler, C. W.: Disease of the Optic Nerve and Its Relations to the Posterior Nasal Sinuses: A Report of Four Cases Showing the Uncertainty of the Diagnosis. *Arch. Ophthalm.*, 1923, lii, 331.

In acute sinus disease with involvement of the optic nerve the outcome is usually good, but there are many cases simulating retrobulbar neuritis with and without nasal or sinus involvement which do not conform to the accepted views. Cutler reports four cases, one of aneurism of the circle of Willis, one of encephalitis lethargica, one of diffuse peri-neuritis and thyrotoxicosis, and one of sinusitis with toxæmia. In all of these there was evidence of optic neuritis, enlarged blind spot, peripheral contractions, and reduced vision.

VIRGIL WESCOTT, M.D.

Thomson, St. C.: Optic Neuritis of Sphenoidal Sinus Origin; Operation; Cure. *Brit. M. J.*, 1923, i, 925.

The case reported was that of a patient who had a postnasal discharge for several years. The eye symptoms began suddenly with a decrease in vision in the left eye followed a few days later by pain and tenderness to pressure above it. Vision was 6/9 in the right eye and 6/60 in the left. The left disk showed 6 diopters of swelling and the field of vision in the left eye was somewhat contracted. Pus was found in each choana and on the floor of the nose. The X-ray showed involvement of the frontal and sphenoidal sinuses.

No improvement in the ocular condition was noted after three days of treatment with radiant heat and steam inhalations. Operation was therefore advised.

Under general anæsthesia supplemented by the application of a 5 per cent cocaine and adrenalin pack under the middle turbinates, the middle turbinates were fractured with a long Killian forceps, the sphenoidal sinuses were entered, and the ostium was enlarged with a punch. For the next four days no treatment was given. No improvement in the eye symptoms was noted. The sinuses were then washed out, and almost immediate improvement in the eye symptoms followed. After repeated lavage of the sphenoidal sinuses at increasing intervals, the eye symptoms and the postnasal discharge entirely disappeared.

Commenting on his experience with these cases, the author draws certain conclusions. Sepsis of the accessory sinuses rarely causes retinitis, papillitis, or optic atrophy though frequently it may be the source of orbital affections. A suppurating sphenoid complicated by optic atrophy should be opened and drained. In retrobulbar neuritis, even in the presence of negative findings as to sphenoidal infection, opening of these sinuses seems to be warranted.

MANFORD R. WALTZ, M.D.

Vail, D. T.: Concerning the Surgical Treatment of Glaucoma, with Special Reference to a Modified Elliot-La Grange Technique. *Arch. Ophthalm.*, 1923, lii, 346.

Vail believes that the best results are obtained in acute glaucoma by a von Graefe iridectomy, in sub-acute glaucoma by a Smith iridectomy, and in secondary glaucoma by removal of the cause supplemented by paracentesis or iridectomy.

Glaucoma simplex he attributes to arteriosclerosis. With regard to the treatment he makes the following statement: "When eserine fails to control the tension, retain the vision and field of vision in *statu quo ante*, operate before it is too late." He failed to gain good results by his operation of connecting the vitreous chamber with the lymph space of Tenon, but his modification of the Elliot and La Grange operation has proved successful. He trephines the sclerocornea, performs the iridectomy in the usual way, and makes a 3-mm. incision to the left and right of the trephine opening, parallel with the periphery of the cornea. The trephine hole does not close before the two lateral incisions. This operation gave good results in nineteen cases in which it was used in the last two years and failed only twice.

VIRGIL WESCOTT, M.D.

Lodge, S., and Lodge, W. O.: Herpes Zoster Ophthalmicus. *Brit. M. J.*, 1923, i, 1084.

The incidence of herpes zoster ophthalmicus in clinic cases ranges from 1 in 10,000 to 1 in 25,000. Most of the subjects are about 55 years of age. In children the symptoms are usually negligible. The condition occurs with equal frequency in males and females and on both sides of the body. It is usually sporadic, supervening during temporary fatigue in persons otherwise healthy and active. According to the position of the causative lesion, Poulard distinguishes three types of the condition: the neuritic or peripheral form, the rhizomeric or ganglionic form, and the metameric form in which the lesion is in the pontomedullary nucleus of the fifth nerve.

Herpetiform eruptions are found in 1 per cent of cases of lethargic encephalitis, and Head and Campbell state that anatomically and pathologically herpes zoster may be described as acute posterior poliomyelitis. The authors raise the question as to whether the virus of shingles in attenuated form is not liable to an increase of virulence.

In mild cases the early neuralgic pain is unilateral, but in severe cases there is intense headache with

vomiting. Meningitis may be suggested by involvement of a meningeal branch from the ophthalmic division of the fifth nerve. According to Chauffard, extension of the disease to the meninges in spinal zoster would account for the pain down the spine, girdle sensations, etc. Formication is a typical symptom. Causalgia is dependent upon the age of the patient and the extent of the scarring. Anæsthesia dolorosa may persist for as long as two years.

Cutaneous manifestations make their appearance as follows: hyperalgesia, erythema, vesiculation, rupture of the vesicles, cicatrization, and hypæsthesia. According to Poulard, the eruption may be hæmorrhagic.

The disease must run its course. Morphine, though indispensable at times, is dangerous because of the duration of the disease. For some cases Hutchinson recommends arsenic. The authors recommend the local use of dusting powders until the vesicles rupture and then the application of cocaine or orthoform ointment. In the later stages, painting with ichthyol in glycerine or massage with any simple ointment is effective. Paroline instilled into the conjunctival sac may be beneficial. The intra-ocular tension should be determined at regular intervals. In severe cases medial tarsorrhaphy is indicated; this provides a natural dressing with adequate drainage. The central united portion is not divided until corneal sensibility returns.

MANFORD R. WALTZ, M.D.

Franklin, W. S., and Cordes, F. C.: Lupus Vulgaris with Ocular Extension. *Am. J. Ophth.*, 1923, 3 s. vi, 573.

Franklin and Cordes report a case of lupus vulgaris first seen when the patient was 13 years of age and then not seen again for nine years, during which time the condition extended and involved the face. At the second examination the upper and lower lids of the right eye were found contracted and the exposed cornea was opaque. The removed eye showed epidermoid epithelium and round-cell infiltration of the cornea and vascularity. The episcleral tissue and the sclera showed a well-defined giant cell.

VIRGIL WESCOTT M.D.

EAR

Odeneal, T. H.: Otitis Media, Mastoiditis, and Disease of the Nasal Accessory Sinuses as Causative Factors in Malnutrition in Children. *Ann. Otol., Rhinol. & Laryngol.*, 1923, xxxii, 561.

In approximately 75 per cent of the cases of malnutrition admitted to the Ancon Hospital, Canal Zone, ear disease had been present at some time in the development of the condition. A few patients had the characteristic symptoms of otitis media and the fever was relieved by paracentesis. In the majority of the cases, however, the ear findings were negative except for lack of luster of the drum and slight thickening which did not prevent the light reflex. Following paracentesis of the apparently

normal drum, slight improvement was noted, notwithstanding the fact that the ears did not discharge for two or three days after the puncture. The delay in the discharge was attributed to slow drainage from the mastoid cavity. The infected ears which were not punctured drained through the eustachian tubes.

In the author's opinion, malnutrition is sometimes due also to mastoid infection.

JAMES C. BRASWELL, M.D.

Layton, T. B.: The Treatment of Acute Otitis Media in Children. *Brit. J. Child. Dis.*, 1923, xx, 65

Layton discusses the changes in the appearance of the drumhead in otitis media, from the earliest evidence of inflammation to bulging, and advises frequent inspection in order that, if bulging occurs, an incision may be made before the occurrence of spontaneous rupture.

As local treatment the application of dry heat and the instillation of warm carbolic-glycerine drops are recommended. The use of moist heat in the form of warm irrigations of water is condemned as it causes maceration of the epithelial lining of the canal and prevents proper inspection of the drum.

After an incision has been made or rupture has occurred, the canal must be kept clean and the opening patent.

OTTO M. ROTT, M.D.

Alden, A. M.: Myringotomy from the Standpoint of the Pathology of Early Otitis Media. *J. Missouri State M. Ass.*, 1923, xx, 169.

The author states that when myringotomy is done by a skilled otologist on the proper indications it is without danger and practically always successful. The routine of opening every red ear drum at once is wrong. Alden discusses the mechanics of the middle ear and the pathologic changes taking place during an early otitis media which show the dangers of myringotomy at the wrong time.

When the inflammatory process begins in the pharyngeal end of the eustachian tube, the resulting congestion and swelling cause a negative pressure in the middle ear cavity because swallowing or mastication does not open the tube. This allows the drum to be forced inward by the outside air pressure. The negative pressure causes the blood vessels to become engorged and swollen and the external surface of the drum to become red. A continuation of the process causes transudate to collect in the middle ear cavity. This fluid, as well as the cavity, is sterile, and opening invites infection. Alden treats this stage by applying adrenalin to the pharyngeal end of the tube, an ice bag to the external ear, and proper medication to the pharyngeal vault.

The change to the second stage of the condition is gradual; the negative pressure changes to positive, the tympanic membrane is gradually forced outward, and the drum bulges into the external auditory canal. At the same time the transudate becomes infected, the pain changes from a "stopped-up feeling" to a

lancinating pain, and leucocytosis appears. The drum should then be opened. For this operation an anæsthetic should be given, preferably nitrous oxide, except in the cases of very young children. A drum properly incised rarely needs re-incision. The author's conclusions are:

Neither the color of the drum nor the configuration of its external surface should be regarded alone as an index of the stage of the ear disease. The decision for or against incision should be based upon all of the signs and symptoms considered together.

Perfect control of the patient is obtainable only by some form of general narcosis.

Paracentesis should be done only in acute interstitial myringitis; all other openings should be incisions rather than stabs.

If the drum membrane is properly opened, re-incision is rarely necessary. If the fever and other symptoms persist after an adequate primary opening, a careful examination should be made for possible mastoiditis or intracranial complications.

GUY L. BOYDEN, M.D.

NOSE

Lewis, J. D.: Depressed Nasal Deformities: A Comparison of the Prosthetic Values of Paraffin, Bone, Cartilage, and Celluloid; with a Report of Cases Corrected with Celluloid Implants by the Author's Method. *Ann. Otol., Rhinol. & Laryngol.*, 1923, xxxii, 321.

The author classifies the common types of depressed nasal deformities as retroussé nose, saddle nose, and depressions of the nasal tip. Other varieties, which usually result from injuries, are combinations of these types.

For the correction of external nasal depressions by a buried prosthesis, one of the following methods is suggested: (1) subcutaneous injections of paraffin, (2) autogenous transplants of bone cartilage, (3) celluloid implants.

Each of these methods is discussed in detail and the discussion is supplemented by comments based on the author's experience. Lewis describes also the technique used to avoid a more or less conspicuous scar following the incision made for the introduction of the nasal prosthesis.

By the oldest method of forming a subcutaneous tunnel a transverse incision is made at the root of the nose corresponding to the point where the bridge of spectacles rests. This method has fallen into disrepute for many reasons. In a modification of it recently suggested by Frank and Straus the initial incision is made on one eyebrow or both eyebrows and from this point the tissues over the infraglabellar notch and dorsum of the nose are elevated with specially designed angular elevators and cutting instruments. The sole advantage of this method is that the scar is concealed by the eyebrows.

Other methods suggested are those of Monks and Gillies. The technique of these procedures is described and their disadvantages are discussed.

The author's technique is described briefly as follows:

A vertical incision is made in the lower half of the columna nasi, and its lips are undermined laterally toward the nasal vestibules. Then by upward cuts with a pair of small, curved blunt scissors, the nasal tip is undermined and converted into a hood. With the same scissors, introduced on the flat, the hood is elevated and the tunnel dissection continued as far as desired toward the infraglabellar notch.

By first packing the anterior nares with gauze or cotton, the field is rendered amenable to sterilization. Local anæsthesia is wholly adequate. By working through the soft tissues at the base of the nose the parts are easily manipulated. Therefore it is not difficult to follow the contour of the nasal dorsum and, with a little care, to carry the tunnel dissection toward the nasal bones without departing from the midline; hence, lateral displacement of the prosthesis is prevented. The support furnished by the tip hood prevents extrusion. The two or three sutures required to close the initial incision are well removed from the tunnel containing the prosthesis. The soft tissues of the columna promptly heal without scar formation.

A series of cases are reported. The article is supplemented by many photographs illustrating the steps in the author's technique and showing a number of his results. A. R. HOLLENDER, M.D.

Allgaier, E. D.: Headaches of Sinus Origin. *Ohio State M. J.*, 1923, xix, 503.

In cases of headache, sinus involvement should be suspected when the patient has a cold which does not clear up in from four to ten days and when he has frequent colds. Recurrent infection of the mucous membrane of the nose, throat, and larynx by the bacteria in an infected sinus is a common cause of both recurrent colds and headache.

OTTO M. ROTT, M.D.

Thomson, St.C., and M'Ilraith, C. H.: Mucocoele of the Frontal Sinus. *J. Laryngol. & Otol.*, 1923, xxxviii, 365.

Fewer than 100 cases of mucocoele of the frontal sinus have been reported in the literature. The authors report the case of a woman 62 years old who suddenly, while in apparently good health, became dizzy and fell forward and to the left. This attack was followed by frequent attacks of dizziness in which she saw flashes of light. Three months later she complained of double vision, insomnia, and severe left frontal and temporal pain which was aggravated by stooping. The left eye became displaced downward and outward.

At examination the movement of the left eyelid and eyeball was found to be good and the fundus normal. Above the inner canthus of the left eye, extending outward to the supra-orbital notch, was a well-marked, rounded, firm, and semi-fluctuant swelling. The anterior wall of the left frontal sinus was slightly prominent but not tender. On trans-

illumination the frontal sinuses were clear. The roentgenogram showed a large left frontal sinus with indistinct shadows extending into the orbit. The anterior end of the left middle turbinate was enlarged and there was bulging of the bulla ethmoidalis. No pus was found.

Operation disclosed a large mucocele extending behind the eyeball up into the frontal sinus. Complete recovery resulted. WILLIAM B. STARK, M.D.

Howarth, W. G.: A Radical Frontal Sinus Operation. *J. Laryngol. & Otol.*, 1923, xxxviii, 341.

In the author's opinion chronic suppuration in the frontal sinus is associated with suppuration in the ethmoid, and a frontal sinus operation should allow the complete removal of the ethmoid cells if this is necessary.

The operation described has been used in over 200 cases. A curved incision is made under the supra-orbital margin and brought down in front of the inner canthus on the side of the nose.

The periosteum is incised in the same line as the skin incision, and the periosteum covering the roof and inner wall of the orbit is raised. The pulley of the superior oblique is then detached from its notch and all of the orbital contents are displaced outward with the lachrymal sac.

The sinus is next opened just above the lachrymal groove and the entire floor of the sinus is removed up to the supra-orbital margin. The lining mucosa is disturbed as little as possible.

With a copper bougie passed through the frontal duct and through the nose, the bone in front of the frontonasal duct is removed and the operator may see whether any ethmoid cells are mounding up into the floor of the frontal sinus or overlying the frontonasal duct.

The ethmoid cells, and if necessary the sphenoid, are next attacked.

A new nasofrontal duct further forward than the old one is made. A rubber drainage tube is inserted through the nose and the wound closed.

WILLIAM B. STARK, M.D.

MacKenzie, A. R., and Wells, E. D.: Sarcoma of the Ethmoid. *J. Am. M. Ass.*, 1923, lxxxi, 102.

The authors report a case of sarcoma of the ethmoid in which there was apparent recovery after roentgen-ray treatment—one maximum dose, 84 per cent of the erythema dose, 200,000 peak kilovolts, 5 ma. with a 1 mm. copper and 1 mm. aluminum filter. Improvement was noticed within twenty-four hours. Six weeks later the patient was practically cured, but a prophylactic dose, the same as the first dose, was given.

The authors draw attention to:

1. The comparative rarity of sarcoma of the ethmoid.

2. The rapid retrogression of the tumor in the case reported and the return of vision (from light perception to normal vision) after one maximum dose of the roentgen ray (short wave length).

3. The rapid improvement in the patient's physical and mental condition.

4. The fact that the short wave-length roentgen ray did not damage the finer structures of the eye or the delicate diseased mucous membrane.

5. The fact that so far as was revealed by a careful search of the literature, this is the first case of apparent recovery induced by the treatment described.

The physical, clinical, and laboratory examinations revealed no evidence of metastasis.

OTTO M. ROTT, M.D.

Dutrow, H. V.: Some Further Observations on the Etiology and Treatment of Maxillary Sinusitis. *Ann. Otol., Rhinol. & Laryngol.*, 1923, xxxii, 308.

In Dutrow's opinion, most infections of the maxillary sinus are of the ascending type. This is contrary to the belief of many who in the past regarded the antrum as a reservoir into which pus drained from infected frontal and sphenoid sinuses and from the ethmoid cells. The author's conclusions are summarized as follows:

1. Destructive intranasal surgery should never be resorted to until after the diseased antrum has been treated and sufficient time has elapsed for the structures within the nose to return to normal.

2. As no re-infections have occurred following a Caldwell-Luc operation in which the middle turbinate and ethmoid labyrinth were left intact, this fact disproves the theory of descending infections.

3. In chronic empyema with granuloma, thorough removal of the disease within the sinus, adequate drainage, and constant ventilation are essential for satisfactory results.

4. Absence of deformity, the preservation of physiological structures, and marked improvement in the general condition fully justify proper radical surgical intervention in this type of sinus infection.

A. R. HOLLENDER, M.D.

MOUTH

Quick, D.: Carcinoma of the Floor of the Mouth. *Am. J. Roentgenol.*, 1923, x, 461.

Carcinoma of the floor of the mouth presents a definite clinical picture and should be easily recognized. The lesion begins almost invariably in the mucosa of the anterior half of the floor of the mouth and usually just at the side of the frenum of the tongue. Its growth is rapid. Malignant growths of long duration such as are frequently seen on the tongue are practically never found in the floor of the mouth. In all of the cases seen by the author the carcinoma was of the squamous-cell type. The disease establishes itself deep in the musculature of the floor of the mouth, and as the anatomical arrangement facilitates extension, the depth of infiltration is relatively greater than that of any other group of intra-oral carcinomata. In those cases of growths beginning at the side of the frenum of the tongue, extension to the opposite side is rapid. This creates

essentially a double lesion, necessitates a more complicated course of treatment, and favors wider lymphatic dissemination.

A peculiar characteristic of the disease is the infiltration of the tongue from below upward. As this is not necessarily accompanied by extensive ulceration of the lingual mucosa until late in the course of the disease, only palpation may reveal it. The rich blood supply and the movement of the tongue may be contributory factors in its spread.

Carcinomata usually arise in the mucosa at the inner or lingual side of the floor of the mouth, this probably accounting for the fact that the early extension is medial rather than lateral. Extension to the lymph nodes occurs often and early. The submaxillary nodes on the side of the primary growth are most commonly affected. Next in frequency of involvement is the jugular node of the upper deep cervical chain overlying the carotid bulb.

Smoking should be considered a contributory cause of carcinoma of the floor of the mouth. Poor teeth and ill-fitting lower plates are other sources of constant irritation.

Until recently, the treatment of the disease has been largely surgical. Pastes are not well adapted for use on moist surfaces. The various heat methods are incorrect from a theoretical point of view.

The author is opposed to the surgical removal of the primary growth in this group of cases as only a small percentage of the subjects are physically able to stand it. The mutilation of the operation is usually extensive. The trauma may cause more trouble than the knife removes and the loss of blood favors rapid growth in any remaining focus.

The treatment of intra-oral carcinomata should be considered, first, with regard to the primary lesion, and, second, with regard to the cervical nodes.

In the treatment of the primary growth unfiltered tubes of radium emanation are buried uniformly throughout the involved area, with care to place them well to the limits of the palpable infiltration. The tubes should be so inserted that there is approximately one tube per cubic centimeter of tumor tissue. The gamma-ray effect alone from buried emanation is three to four times as great as the strongest cross-fire of heavily filtered radium at a distance of 10 and 15 cm. or high voltage X-rays at a distance of 50 and 70 cm. The tubes have not been found to cause trouble as foreign bodies. The slough in the mouth may be more extensive than in other regions as infection is more common in the mouth.

In the treatment of the cervical lymphatics a conservative procedure is favored. The neck is treated with the X-ray to aid the lymph nodes in the destruction of the tumor cells and to stimulate the protective defenses of the body cells. In this manner, secondary extension of the disease is combated and partial destruction of the lymph channels is effected. If at this time the neck is free from palpable involvement, radiation with the X-ray or heavily filtered radium is given and the case is kept under observation. If an invaded node is found or

appears, a unilateral block dissection under local anæsthesia is done and radium emanation is buried at all suspicious points in the wound. If the disease has already perforated the capsule of a node or group of nodes, radium emanation is buried in these nodes before the wound is closed.

In all cases an estimate of the result to be reasonably hoped for should be made before treatment is begun. If complete regression of the disease is possible it is justifiable to use doses to the limit of tissue tolerance, even at the risk of considerable reaction. If only palliative relief can be expected, the patient's comfort should be given first consideration and the dosage modified accordingly.

During a five-year period 113 cases of carcinoma of the floor of the mouth were treated. Twenty-three patients have been clinically free from the disease for periods ranging from eight to fifty-two months. The average length of time for the group was twenty-five and a half months. Of forty-three patients given palliative relief, eighteen are still living. Fourteen patients have been treated too recently to warrant judgment as to the outcome.

The author reaches the following conclusions:

1. Carcinoma of the floor of the mouth is a distinct clinical entity with peculiar therapeutic problems which render it unlike any of the other intra-oral groups.
2. We believe our experience to date warrants us in advising interstitial radiation by means of unfiltered radium emanation tubes as the agent of choice in the treatment of the primary lesion.
3. We believe that the problem of dealing with the metastatic extension of the disease to cervical nodes is best handled on a conservative basis, with the use of a combination of surgery, radium, and the X-ray.
4. These conclusions are made with full recognition of the limitations of the observation period and of the number and type of cases treated.

JAMES C. BRASWELL, M.D.

Patterson, N.: Diathermy for Malignant Disease of the Mouth, Pharynx, and Nose; with Notes on Seventeen Successful Cases. *Brit. M. J.*, 1923, ii, 56.

In reporting seventeen cases of malignant disease of the mouth, pharynx, and nose which were successfully treated by diathermy, Patterson states that the chance of obtaining a complete and lasting cure is excellent when the growth is small, superficial, and some distance from important structures, and when the glands are free from involvement or only slightly invaded.

OTTO M. ROTT, M.D.

THROAT

Howarth, W. G., and Gloyne, S. R.: Unhealthy Tonsils Associated with Cervical Adenitis. *Lancet*, 1923, cciv, 1202.

The authors studied a series of thirty-four enlarged tonsils from cases with marked cervical adenitis. They summarize their findings as follows:

1. In enlarged and unhealthy tonsils associated with cervical adenitis in children the chief histological changes noted were: (1) a marked increase in the lymphoid tissue, and (2) lesions in the crypts—desquamation of the epithelial lining, plugging of the orifices, dilatation of the lumen into cyst-like spaces, and occasionally the formation of minute abscesses.

2. Every tonsil examined showed evidence of bacterial infection. Many different species of organisms were found. The maximum number of species discovered in one tonsil was seven and the average number three. The most common was the streptococcus.

3. In a series of tonsils examined for the presence of pathogenic organisms it was found that 56 per cent contained bacteria which were virulent for the mouse. These organisms were hæmolytic and non-hæmolytic streptococci and pneumococci of Types I and IV. This pathogenic group of cases showed greater liability to the development of large masses of cervical glands (five of eighteen) than did those of the non-pathogenic group (none in fourteen).

4. The hæmolytic streptococci varied as to their virulence in the mouse.

5. Bacteria demonstrated in sections (chiefly cocci) showed that the infection tended to follow a definite path, viz., through the stratified epithelium (generally in the crypts where it is thinner than on the surface) into the diffuse lymphoid tissue, thence along the minute lymphatics of the connective tissue trabeculae to the capsule, and thence to the lymph tracts of the pharyngeal wall.

6. In a separate series examined for tuberculosis it was found that the giant cells were generally in the lymphoid tissue and rarely elsewhere.

7. In two cases, actinomyces-like organisms were obtained, but there is reason to believe that they were not true ray fungi.

From this study it seems probable that tuberculosis is only a late infection, and that in the majority of cases the cervical adenitis is due to septic absorption from tonsils containing pyogenic organisms such as the streptococcus. This view is borne out by the fact that when the infected tonsils are removed by operation the affected glands frequently subside.

Otto M. Rott, M.D.

NECK

Benedict, C. G., and Benedict, F. G.: A Permissible Breakfast Prior to Basal Metabolism Measurements. *Boston M. & S. J.*, 1923, clxxxviii, 849.

The rapid advance in the use of basal metabolism measurements as an index of the plane of vital activity has resulted in the study throughout the United States of probably not less than 200 or 300 persons each day.

One discomfort experienced by the subject of these tests is the necessity of abstaining from food completely for twelve hours. Often he has a sensation of hunger and frequently experiences faintness.

The psychological attitude toward the test would therefore be greatly bettered, if it were possible to give an amount of food which would temporarily satisfy the appetite and yet would not stimulate the metabolism to such a degree as to vitiate the basal metabolism determinations.

In a study of the influence of a light meal upon the metabolism Du Bois and his associates found that the metabolism was essentially at the basal level two hours after the ingestion of a meal containing a small quantity of protein and saccharose. The meal should be non-stimulating and should produce a sense of satiety. The food elements that stimulate metabolism are protein and the ketose sugars such as levulose and sucrose. Fats are the least stimulating and fortunately are the class of nutrients that most freely produce a sense of satiety. The meal decided upon consisted of:

- 1 cup (200 c.cm.) of caffeine-free coffee.
- 16 mgm. of saccharin.
- 30 gm. of medium cream.
- 25 gm. of potato chips.

In this meal there is very little protein, no ketose sugar, an appreciable proportion of fat, and a total calorific value of about 250 calories, depending upon the percentage of fat in the cream.

The authors report the details of the study of the effect of this diet on two normal subjects. It is concluded that in normal persons a meal of this type is without any measurable influence, provided the food is eaten at least one hour before the tests are made. However, as it has not been demonstrated that even this small amount of food does not further stimulate the abnormally high metabolism obtaining in certain disturbances of the endocrine glands, tests should be made along this line before the light breakfast is given in cases of pathology.

In the authors' opinion the euphoria resulting from the light warm breakfast will lessen the subject's discomfort and irritability and thereby lead to more accurate basal metabolism measurements.

A. W. BRYAN, M.D.

Brown, L. E.: The Relation Between Thyrotoxicosis and Tonsillar Infection. *Ann. Otol., Rhinol. & Laryngol.*, 1923, xxxii, 367.

From questioning practitioners whom he believed to be in a position to give information, the author concludes that comparatively little attention had been given to the possibility of a relation between goiter and tonsil infection and that it is generally believed that goiter is largely of toxic origin and that the tonsil is no more likely to be the focus of infection than any other part of the body, such as the sinuses, teeth, and gall-bladder.

A survey of the scant literature relating to this subject seems to indicate that those who have investigated the coincidence of goiter and infection of the tonsils incline to the belief that in many cases diseased tonsils may be directly responsible for goiter, either simple or exophthalmic. Brown urges that throat specialists give particular attention

to the state of the thyroid gland in all cases of infected tonsils, and that practitioners treating thyroid disorders bear in mind the possibility of an exciting factor in diseased tonsils.

ARTHUR L. SHREFFLER, M.D.

Frank, L. W.: Surgery of the Toxic Thyroid. *Kentucky M. J.*, 1923, xxi, 306.

In the author's opinion, the basal metabolism is a most valuable aid in the diagnosis of toxic goiter but not an index of operability or the postoperative reaction. X-ray treatment is not without danger as death may result from the reaction to it just as after operation. The best treatment is a graded operation performed with the patient in a state of analgesia induced with nitrous-oxide oxygen and the local use of novocaine.

ARTHUR L. SHREFFLER, M.D.

Boas, E. P.: Cardiac Disorders Accompanying Exophthalmic Goiter. *J. Am. M. Ass.*, 1923, lxxx, 1683.

In exophthalmic goiter the tremendous dilatation of the arteries and veins of the thyroid short-circuits the blood flowing to the neck and increases the load on the heart in the same manner as arteriovenous aneurisms, while the heightened oxygen consumption causes an increased minute volume flow of the blood which may be from 25 to 60 per cent greater than normal. The increased work thus thrown on the heart is the chief cause of cardiac dilatation, hypertrophy, and insufficiency in exophthalmic goiter.

ARTHUR L. SHREFFLER, M.D.

Lahey, F. H.: A Technique of Thyroidectomy. *Surg., Gynec. & Obst.*, 1923, xxxvi, 825.

The author describes a technique he has used in several hundred goiter operations which gives better exposure of the field and greater safety than the usual technique. An incision is made just through the skin, except in the middle where it is carried deeper, going down to the sternothyroid and sternohyoid muscles. A pair of blunt scissors is inserted at this point and the platysma raised out to the end of the incision without damage to the large veins on

the anterior muscles of the neck. The prethyroid muscles are then cut between clamps and reflected upward and downward. The sternomastoid is dissected free from the prethyroid muscles and retracted outward, together with the internal jugular vein and the carotid artery. In this manner the upper pole is well exposed so that it may be ligated in full view. After division, the thyroid is turned downward for clear posterior exposure to prevent injury of the recurrent laryngeal nerve and the parathyroids.

ARTHUR L. SHREFFLER, M.D.

Hubbard, R. S., and Webb, C. W.: Acetonuria Following Thyroid Operations. *Clifton Med. Bull.*, Clifton Springs, N. Y., 1923, ix, 85.

The authors give the results of studies of the acetone in the urine in a few cases operated upon for goiter and compare them with the findings in cases of abdominal operation.

They found that the use of nitrous oxide-oxygen for the induction of anæsthesia had no effect on acetonuria, but that the ingestion of carbohydrates tended to reduce it. Glucose given by rectum reduced it but did not prevent it. They believe that thyroidectomy has a specific effect in the causation of acetonuria as the latter did not always follow other operations. They accept the view that acetonuria may be the result of increased secretion due to handling of the parts during the operation as this may increase the metabolic rate which in turn exhausts the sugar reserve and produces an acidosis akin to that found in carbohydrate starvation.

In the few cases studied the acetonuria approximately paralleled the metabolic rate. Persons with goiter frequently have a low carbohydrate reserve, and this starvation increases acetonuria. The degree of acetonuria varied directly with the metabolic rate and roughly with the activity of the glands as shown by section.

The conclusion is drawn that the two factors influencing acetonuria after goiter operations are an immediate increase of thyroid secretion due to the operation and a lowered carbohydrate reserve.

E. A. BAUMGARTNER, M.D.

SURGERY OF THE NERVOUS SYSTEM

BRAIN AND ITS COVERINGS; CRANIAL NERVES

Rosenow, E. C.: Specific Serum Treatment of Epidemic (Lethargic) Encephalitis: Further Results. *J. Am. M. Ass.*, 1923, lxxx, 1583.

A somewhat peculiar streptococcus has been isolated from the infected tonsils, teeth, and nasopharynx of patients suffering from various forms of encephalitis. With this streptococcus, typical symptoms and lesions of encephalitis have been reproduced in animals, the type of disease induced experimentally often resembling that present in the patient from whom the strain was isolated. In a series of immunological and other experiments it has been found that while the various strains are of low virulency, they have decided antigenic power. With the dead bacteria, rabbits have been successfully immunized against encephalitis. Agglutination and agglutinin absorption tests with convalescent human and hyperimmune horse serum show that most of the strains isolated are immunologically identical. The serum from rabbits and horses immunized by repeated injections of increasing doses of this streptococcus has been found to protect rabbits and mice against properly gauged doses of homologous and immunologically similar heterologous strains.

The serum used in the cases reported was a mixture of the serum from two horses injected with four strains, one strain from the throat of a patient with lethargic encephalitis, one from the spinal fluid of a patient with encephalitis and marked involvement of the meninges, one from the throat of a patient having encephalitis with hiccup, and one from the medulla of a rapidly fatal case of encephalitis.

After a desensitizing dose, the serum was given intramuscularly, intravenously, or intraspinally. Beneficial results were manifested in various ways, depending on the type of the disease. The effects in 130 cases were studied. Eighty-five patients improved and forty-three showed no appreciable change. In two acute cases it was the opinion of the attending physicians that the symptoms were aggravated following the injection of the serum. Of the group of patients who showed improvement, three died after temporary benefit. The duration of the disease at the time of serum treatment, determined in seventy-one cases in the group of patients who derived apparent benefit, ranged from two days to three years. Of the group of forty-five patients in whom no beneficial effects were noted, nineteen died. Most of the fatal cases were acute and very severe forms of the disease, and, in many, inadequate amounts of serum were given.

The time when improvement began varied considerably. As a rule it occurred within twenty-four hours after each injection, but in some instances, especially in chronic forms of the disease, it did not occur until after recovery from delayed serum reaction. In most cases in which improvement was apparently initiated by the serum treatment, it continued thereafter; in some, the gain was temporary. In fulminating bulbar types of the disease the serum did not stay the process. In cases of long duration, anatomical changes may have taken place which precluded the possibility of benefit. In acute fulminating cases the reasons for lack of improvement are obvious, but in milder forms of the disease are not so apparent. Sepsis of teeth and tonsils may have been responsible, or the explanation may be found in the fact that not all of the strains are immunologically identical. The author's experimental studies indicate that the progressive and changing character of the disease, the exacerbations, and the so-called sequelæ are due to an active infection by a streptococcus which has peculiar neurotropic and other properties, and that invasion may be favored by the presence of primary foci of infection.

The results obtained thus far are encouraging and about what would be expected in view of the results of protective and other experiments on animals, but leave much to be accomplished.

Jacobi, H. G.: A Case of Cerebral Cyst in an Infant. *Am. J. Dis. Child.*, 1923, xxv, 435.

The author reports the case of an infant 1 year old who was taken suddenly ill with spells of vomiting and restlessness and awakened from sleep with sudden outcries of pain. When examined by Jacobi it was comatose and occasionally exhibited convulsive movements. The pupils were dilated and did not respond to light. There was bilateral ptosis. The eye-grounds were negative. The knee jerks were exaggerated and the Babinski reflex was present. The urine contained 0.8 per cent sugar. Edema of the lungs developed and the child died the following day.

Autopsy revealed an excessive amount of cerebrospinal fluid and a marked flattening of the convolutions, especially over the right hemisphere. Beneath the posterior horn of the lateral ventricle on the right side a thin-walled cyst containing 60 c.cm. of creamy yellowish fluid was found. This was non-adherent and easily shelled out. The contents of the cyst proved to be chiefly pseudomucin. The hyperglycæmia may have been a part of the terminal condition or the result of pressure on the fourth ventricle simulating the puncture diabetes of Bernard.

Bruns classified brain cysts as: (1) congenital, (2) traumatic, (3) parasitic, (4) those resulting from brain softening, and (5) those of unknown origin. The author believes that his case belonged to the group of congenital cysts. The contents of the cyst proved it to be of the proliferative type.

WILLIAM J. PICKETT, M.D.

Parkinson, J. P., and Broster, L. R.: A Case of Cerebral Abscess in a Child. *Lancet*, 1923, cciv, 1107.

The case reported was unusual because the patient was only 4 years old and because the abscess was secondary to lung pathology and eroded through the skull, forming a tumor beneath the scalp. At first there were jacksonian convulsions beginning in the left arm, but months elapsed before headaches, vomiting, choked discs, and reflex changes appeared. The postmortem examination revealed an abscess of the right pre- and post-rolandic areas, $\frac{1}{2}$ in. below the cortex, a smaller abscess on the medial aspect of the brain, and slight internal hydrocephalus. The lungs were emphysematous, and pus was present in the smaller and lower bronchioles. *Staphylococcus aureus* was found in the pus from the brain and the bronchioles.

P. R. BILLINGSLEY, M.D.

Dandy, W. E.: A Method for the Localization of Brain Tumors in Comatose Patients; the Determination of a Communication Between the Cerebral Ventricles and the Estimation of Their Position and Size Without the Injection of Air (Ventricular Estimation). *Surg., Gynec. & Obst.*, 1923, xxxvi, 641.

A method of localization offered only as an emergency procedure for use in the cases of patients in the last stages of intracranial pressure, i.e., coma or impending coma, consists in estimating the size, position, and intercommunication of the ventricles by aspiration of the fluid in the lateral ventricles and occasionally from the cisterna magna. At all other times, if there is doubt as to the location of the tumor, the precise method of cerebral pneumography should be used if the patient's condition is favorable.

The position of the lateral ventricles can be determined by ventricular puncture; their size, by measuring the fluid in the ventricles; and their communication with each other, by injecting a dye into one ventricle and testing for the color elsewhere in the ventricular system. Puncture of both ventricles is always necessary. This information, while it still leaves much to be desired, is usually sufficient at least to indicate whether either cerebral hemisphere or the cerebellum is the probable seat of the tumor.

The author approaches the ventricles posteriorly through a small perforator opening in the occipital region of each side of the skull, as for cerebral pneumography. The occipital region is chosen because the largest part of the lateral ventricle, the vestibule, is most accessible from this point. The vestibule, on the whole, is less easily collapsed and

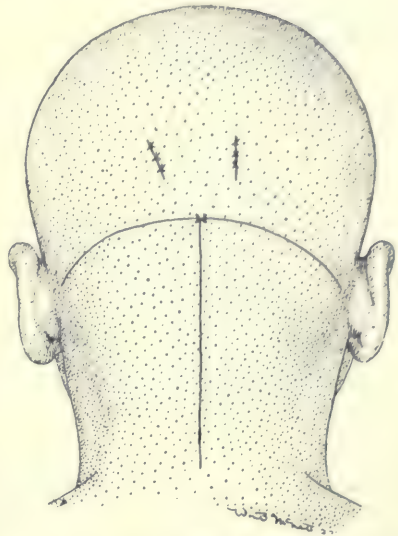


Fig. 1. To show the position for bilateral ventricular punctures. A cerebellar incision is outlined for orientation. For the puncture, either a slightly oblique or a vertical incision can be made.

dislocated than other parts of the ventricle, and the vestibules and posterior horns are farther apart and less equally occluded by the same pressure. Bilateral puncture of the anterior ventricular horns has been done, but the anterior horns are smaller and more difficult to enter; dislocation and collapse of both is more likely because they are closer together and more equally affected by pressure directed from the side; the site of puncture is nearer the midline and in a more vascular area. Lateral puncture into the descending horn has been done very rarely and never bilaterally. Lateral puncture of the left ventricle is hardly to be considered because of the important speech areas which the needle must traverse.

Normally the needle enters the ventricle in a proper direction at a given depth. Definite lateral displacement of the vestibules indicates the location of the growth and is presumptive evidence of a tumor in the posterior half of the cerebral hemisphere. Tumors in the anterior hemispheres are not apt to cause such a pronounced dislocation of the vestibules. A ventricle which is hydrocephalic will be more easily reached than a normal ventricle.

The lateral ventricles, which vary in different persons, are apparently of equal size in the same person unless there is some lesion to cause inequality. The lateral ventricle is smaller on the side of the cerebral tumor (excluding a resultant localized hydrocephalus). As a rule it is impossible to reach the ventricle with the needle, and if it is reached, only a few drops of fluid will escape. Occasionally both ventricles may be small and one must rely for information solely upon ventricular puncture. For practical purposes, 25 c.cm. is a

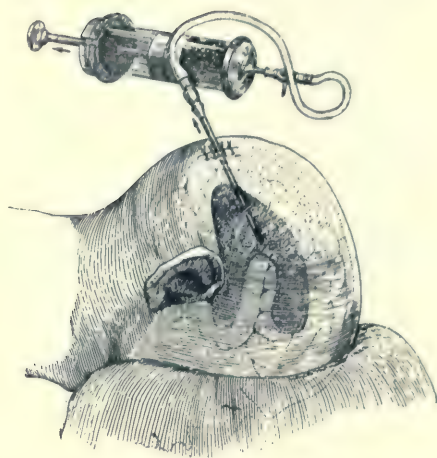


Fig. 2. Diagram with lateral ventricles outlined, indicating the approximate course of the ventricular needle.

standard quantity of aspirated fluid from which to draw conclusions. Aspiration of more fluid would usually require the injection of air to prevent too great negative pressure. A small ventricle on one side will eliminate a tumor in the posterior fossa but not a unilateral or focal hydrocephalus on the other side. A unilateral hydrocephalus does not prove a tumor to be located in the posterior fossa. Unless the ventricle is very small, the quantity of fluid that spurts from the needle indicates the degree of intracranial pressure only roughly. From a normal or small-sized ventricle there will be a considerable spurt of fluid; a hydrocephalic ventricle may not give more. After the relief of pressure, the important factor is the residual quantity that can be aspirated.

Free communication of the two lateral ventricles is indicated by the injection of 1 or 2 c.cm. of indigocarmine into one lateral ventricle and its aspiration from the other. If none of the dye passes into the contralateral ventricle (obstruction present anterior to the aqueduct of Sylvius), there must be a tumor in the anterior or middle rather than the posterior cranial fossa. If both ventricles are dilated and the dye passes freely to the opposite side, the tumor will be in the posterior fossa, except in cases of pineal gland tumors and long-standing cases of hydrocephalus in which an artificial communication between the lateral ventricles has resulted from pressure atrophy of the septum pellucidum.

Indigocarmine is not irritating, but phenolphthalein may cause very decided irritation. An obstruction (usually a tumor) at or posterior to the aqueduct of Sylvius will prevent the dye in the lateral ventricles from appearing in the cisterna magna or the lumbar subarachnoid space. If the hydrocephalus is due to the increased production of fluid rather than to obstruction, the dye will pass freely. This communication or obstruction can be

determined by aspiration through lumbar puncture, cisternal puncture (Ayer's puncture), or operative exposure of the cisterna magna. Because of the danger of medullary injury, the author is strongly opposed to lumbar puncture in cases in which intracranial tumor is suspected. It should never be done unless pressure has been relieved by ventricular puncture, and even then Dandy would hesitate to do it when the patient is in coma. Ayer's puncture would be equally dangerous. In a doubtful case of tumor of the posterior fossa it is very much safer to expose the cisterna magna. If a tumor is present, an operative procedure is necessary.

The author reports the cases of four patients with brain tumor who were comatose on admission to the hospital. No information leading to localization of the tumor could be obtained by examination or from the history given by friends and relatives. In three of these cases the estimation of the ventricular capacity alone made the localization possible. In the fourth case both lateral ventricles were so reduced that only drops of fluid could be obtained from either side, but the ventricles were so definitely dislocated toward the right that the tumor was localized to the left cerebral hemisphere.

The method is dependent upon a knowledge of the ventricular topography and ability precisely to reach the normal ventricle and to interpret the results of punctures in terms of intracranial pathology. Causes of error are:

1. The great variation in size of the normal lateral ventricles. In one case they were four or five times the size of those in another. Fluid quantities may vary from 15 to 40 c.cm.
2. The position of the tip of the posterior horn near the surface of the brain. This may suggest that the ventricle is dilated.
3. Bilateral hydrocephalus may develop from obstruction at any point between the foramina of Monro and Magendie, i.e., conditions in both the middle and the posterior fossae. A high percentage of tumors are in the middle fossa. The error results from a small group of tumors of the pineal and contiguous brain that occlude the aqueduct of Sylvius but do not close the foramen of Monro. Tumors of the pituitary and third ventricle and certain tumors of the pineal body can be eliminated by the indigocarmine test.

In the presence of a bilateral hydrocephalus with communication of the lateral ventricles, a cerebellar exploration is justified. With the dye test, practically all tumors of the posterior fossa can be found at operation.

In the cases of comatose patients ventricular estimation may be used to exclude tumors from other intracranial lesions simulating tumor. The author reports a case of coma with chronic meningitis and acute hydrocephalus.

Ventricular estimation requires little time, is relatively simple, easily performed, and relatively harmless. The principal danger to life is in puncturing

an intraventricular tumor and thereby causing intraventricular hæmorrhage. Its most important defect is the possibility of incorrect localization. Hence the method should be used only in emergencies in which the more precise methods (such as cerebral pneumography) may aggravate the pressure symptoms when the intracranial tension is high and valuable time would be lost in making them.

WALTER C. BURKET, M.D.

Hashimoto, T.: The Absorptive Power of the Subarachnoid Space (Ueber die Resorptionsfähigkeit des Subarachnoidealraumes). *Japan. Ztschr. f. Dermatol. u. Urol.*, 1922, xxii, 63.

Numerous investigations have been made with regard to the passage of substances absorbed in the blood into the cerebrospinal fluid, but the absorptive power of the subarachnoid space has been studied by only a few workers.

The author attempted to demonstrate the passage of alkaline 0.06 per cent phenolsulphonaphthalein and 5 per cent indigocarmine solution from the blood to the cerebrospinal fluid in animals (guinea pigs, rabbits, and puppies) and in man, but obtained only negative results.

In other animal experiments he injected the same dye-stuffs into the subarachnoid space and endeavored to follow the process of absorption by determining the time when the dye appeared in the urine. He found that this occurred somewhat later than after intravenous injection.

In investigations on human beings, he injected from 0.2 to 0.45 c.cm. of phthalein in alkaline 0.6 per cent solution. About one-half hour after the injection all of the subjects complained of transitory paralysis of the lower extremities and phenomena of irritation such as vomiting and headache. The dye did not appear in the urine until after from nine to forty minutes.

HASHIMOTO (Z).

Lisser, H., and Nixon, C. E.: Dyspituitarism and Epilepsy. *Med. Clin. N. Am.*, 1923, vi, 1471.

The authors report six cases of epilepsy associated with marked evidence of disturbance of the endocrine glands, primarily the pituitary. Organotherapy was administered to all of them. In four it was given for a period of from one to one and one-half years, with strikingly beneficial results on the menstrual disturbances, obesity, and mental and emotional states. In five cases treated for a long time the epileptic seizures either ceased entirely or became far less frequent and much milder. Two of these patients received neither luminal or bromides.

The authors consider it important for the future of these patients that existing endocrine abnormalities be recognized and that a determined effort be made to correct them. They do not intend to suggest that all cases of epilepsy not due to brain tumor or syphilis are due to, or associated with, endocrinopathies.

An essential in all gland therapy is patience. The treatment must be continued for months sometimes

even for years; no results can be expected from haphazard treatment for a period of a few weeks.

WALTER H. NADLER, M.D.

Bastianelli, P.: The Frontal Method of Schloffer-Duret Without Exenteration of the Orbit: A Contribution to the Possibility of Relative Exploration of the Base of the Brain (Il metodo frontale di Schloffer-Duret senza exenteratio dell'orbita: contributo alla possibilità dell'esplorazione relativa della base del cranio). *Arch. ital. di chir.*, 1923, vii, 140.

The author reports the case of a boy of 15 years whose condition was diagnosed as due to a left retro-orbital endocranial tumor of probably osseous origin. From the symptoms it was believed that the tumor was parachiasmatic, near the apex of the orbit, and that it compressed the optic nerve.

The Schloffer-Duret frontal method of approach was chosen not only on account of the situation of the tumor but also because this method exposes the apex of the orbit. In 1913 Frazier performed a hypophysectomy successfully by the fronto-orbital route; the frontal strip in this case was somewhat smaller than that of Schloffer-Duret and had a lateral pedicle. No exenteration was done.

After incising the dura, Bastianelli was able to explore the optic nerve, the chiasma, and the anterior sella turcica in full view. Exploration of the left lateral part of the sella with the finger caused a spurt of serous fluid. This contained particles resembling the remnants of the walls of a cyst. A deep hæmorrhage then appeared, and as the patient became cyanotic, the operation was concluded.

On the eighth day after the operation the temperature began to rise. The bone flap was therefore opened up and the region lavaged with physiological salt solution. On the fourteenth day signs of meningo-encephalitis appeared, and on the eighteenth day the patient died. Autopsy was not permitted.

Bastianelli considers the case very interesting, not only because of the survival of the patient for eighteen days, but also because the operation described permitted exploration of the base of the brain from the anterior surface of the sella turcica forward.

W. A. BRENNAN.

Paterson, D.: Tuberculous Meningitis. *Practitioner*, 1923, cx, 431.

The author describes tuberculous meningitis as a miliary tuberculous infection of the meninges having its origin at some focus within the body. The bronchial glands were responsible in 87 per cent of the cases studied, and the mesenteric glands in 11 per cent. In 90 per cent the lungs were also involved, and in 75 per cent the spleen and other abdominal organs.

The bronchial glands of children are infected by the inhalation of human bacilli, while the mesenteric glands are involved through the swallowing of contaminated food. In the author's opinion the bacillus of human tuberculosis is responsible rather than the bacillus causing the bovine type. The

general miliary infection may follow an infectious disease or be brought about through confinement in poor surroundings and by improper or avitaminous food.

The diagnosis must be made from the history of an insidious onset, drowsiness, and constipation with occasional emesis. At times there may be a sharp cry, and as a rule general hyperæsthesia is present. The condition may be differentiated from encephalitis and poliomyelitis by its onset and general picture. Repeated spinal puncture may be necessary, and in doubtful cases of mastoid infection an exploratory incision should be considered.

WILLIAM J. PICKETT, M.D.

Jenkins, G. J.: Otitic Meningitis. *J. Laryngol. & Otol.*, 1923, xxxviii, 304.

By the term "meningitis" is to be understood an inflammation of the meninges of the brain and the spinal cord produced by a micro-organism. If inflammation of the meninges arises secondarily to, and due to, septic disease of the ear, it must be regarded as a septic meningitis, whether or not an organism is found in the cerebrospinal fluid.

It remains for otologists to recognize and determine: (1) the septic affections of the ear that are prone to cause meningitis, in order that this intracranial complication may be more often diagnosed at an early stage; (2) the symptoms and signs associated with the early as well as the late stages of meningitis; (3) the symptoms and signs that will indicate the region of greatest intensity of the inflammation and the probable limits, if any, of the affected area.

The causative factor is a colony of micro-organisms situated either in the ear, some closely related structure infected from the ear, or the meningeal system itself, but the pathological and clinical progress of the condition depends chiefly on the resistance of the subject to the organism and its toxins. There does not seem to be any definite relation between the nature of the organism and the clinical progress.

Up to a certain point, meningitis of aural origin may be compared with abscess formation. In this phase the infection is extending toward the meninges from the ear or a part infected from the ear.

The most simple form of meningitis is an extradural abscess. In this condition only the outer surface of the dura may be affected. Obvious meningitis of the subarachnoid region may occur secondarily to ear disease in the absence of macroscopic evidence of disease of the dura mater.

The study of the changes in the cerebrospinal fluid in meningitis is of the utmost importance. However, while these changes have been regarded as affording the most reliable information as to the nature and stage of the condition, there is reason to believe that they are reliable only when considered with the clinical features.

The character of the changes in the lumbar puncture fluid is due to two chief factors, viz., the site

of maximum infection, and the stage reached by the inflammatory process. Jenkins' experience has led him to believe that differences in the character of the lumbar puncture fluid depend far more upon these factors than upon the effect of any particular bacterial toxin.

In all the cases of infection of the meninges of the middle fossa that have come under the author's observation the path of infection was through the roof of the middle ear.

Infection of the meninges of the posterior fossa may occur by way of the labyrinth and through the posterior wall of the antrum, or may be secondary to septic thrombosis of the lateral sinus. In the cases studied microscopically by the author the infection passed from the labyrinth to the meninges, along the elements of the auditory nerve, and to the internal auditory meatus.

The character of the early symptoms and signs depends first upon whether the primary infection occurred in the cisterna or in the trabeculated subarachnoid space, and second, upon whether the invasion is in the posterior or middle fossa. Primary infection of the cisterna pontis can occur only through the labyrinth.

In the cases of acute labyrinthitis which have been under Jenkins' care in recent years, the lumbar puncture fluid has always been examined and has usually been found normal. The path of infection is probably by way of the internal auditory meatus.

In the invasion of the cistern one of the most obvious signs of the change is slight torpidity without irritability, a feature recognized by the patient's friends if not by the surgeon.

Inflammation in the trabeculated part of the subarachnoid space usually spreads comparatively slowly, and the early symptoms are therefore more those of a local than a spreading inflammation.

It is the early stage of the subarachnoid type of leptomeningitis that most often passes unrecognized, probably because otologists pay too little attention to the patient's complaints and rely too much on the physical signs. Headache, especially when localized in the affected side, should be considered of great significance, even when it is unsupported by other symptoms or signs and whether the ear condition is acute or chronic.

In the author's experience, affections of the subarachnoid space in the posterior fossa have always been secondary to lateral sinus thrombosis or to abscess (subarachnoid or intracerebellar). In these conditions also the symptoms of meningitis are obscured until the disease has reached the cisterna pontis.

The statement so commonly made that septic meningitis should not be diagnosed unless the organisms can be demonstrated in the cerebrospinal fluid is wholly erroneous and dangerous.

Jenkins gives the symptoms of infection in various locations of the skull.

In the operative treatment of leptomeningitis, whatever the stage, it may be regarded as fundamen-

tal that the causative ear disease should be eradicated as completely as possible, whatever other additional procedure is adopted. Such treatment should be sufficient to bring about a satisfactory result in all the milder affections of the meninges (*meningite de voisinage*) when the organisms have not invaded the subarachnoid region. No doubt many cases of this condition are unrecognized, particularly because all symptoms are often entirely cleared up after the radical operative measures usually employed in the treatment of ear disease.

When it is clearly evident that the infection has invaded the subarachnoid region, drainage must be established speedily at the point of maximum infection.

In a primary infection of the cisterna pontis, the course of the operative procedure should be along the track of the infection, viz., through the labyrinth to the internal auditory meatus. It is important that all bleeding be stopped before the internal auditory meatus is opened.

The author describes in detail the technique of operation for infections in the cistern region, the trabeculated subarachnoid region, and the later stages of leptomeningitis.

The conclusions arrived at from the study of this aspect of otitic meningitis are as follows:

1. We must endeavor to recognize leptomeningitis at the early stage, when the infection is local and there is evidence of a region of maximum intensity of inflammation. Treatment at this stage has a fair chance of success.
2. There is an intermediate stage of the disease the treatment of which is still a matter of investigation and experiment.
3. There is a stage in which surgical aid is impossible.

A detailed report of five cases of leptomeningitis successfully treated was made in the *Journal of Laryngology and Otology* in 1922. Three additional cases are recorded here. CARL R. STEINKE, M.D.

SPINAL CORD AND ITS COVERINGS

Kerppola, W.: Is the Retention of Sensation Over the Sacral Segments of Value in the Differential Diagnosis Between Extra- and Intra-Medullary Spinal Cord Lesions? (Ist die erhalten gebliebene Sensibilität der letzten Sakralsegmente ein differentialdiagnostisches Unterscheidungsmerkmal zwischen extra- und intramedullären Rückenmarksaaffektionen?) *Acta med. Scand.*, 1923, lvii, 527.

A study of a large series of cases of spinal cord disease will reveal the occasional retention of sensation over the sacral areas when there is complete loss of sensibility in the rest of the trunk. In other words, the impulses from the caudal end of the body have escaped the interruption which has involved all other sensory impulses. This phenomenon sometimes appears in cases of Brown-Séquard paralysis. It is probable that in the cervical region impulses from the sacral segments, after crossing within the cord, pass up in paths separate from those from the lum-

bar and thoracic segments. The arrangement of these paths must be lamellar.

The author cites several cases of extramedullary lesions which exhibited this phenomenon and concludes that such retention of sensibility is an important differential sign between extra- and intramedullary lesions.

LOYAL E. DAVIS, M.D.

PERIPHERAL NERVES

Lewis, D.: Some Peripheral Nerve Problems. *Boston M. & S. J.*, 1923, clxxxviii, 975.

The problems of peripheral nerve regeneration should be approached only by regarding the nerve as a conducting link in the neuromuscular system, the other links being the nerve cell, the motor end plate, the periterminal network, the muscle fiber, and the sensory disturbances following nerve section. The chief problem is to find which of these elements most often fails in the attempt at nerve repair.

Most striking in the distal nerve segment is the absence of gross evidence of atrophy. Myelin cylinder changes seem to be secondary to neurofibrillar changes, the myelin becoming irregular in outline and broken up into fragments with round ends. The neurofibrillæ become thickened, irregular in outline, and granular, and break up into masses and granules. These changes are degenerative.

At the same time a regenerative change begins in the neurilemmal sheath. The neurilemmal nuclei show mitotic figures and the protoplasm increases in amount and is displaced into the lumen of Schwann's tubule to lie between the masses of myelin. In this manner the so-called protoplasmic bands are formed. Similar bands develop in the proximal segment. The protoplasmic bands from the two segments unite.

Without these bands nerve regeneration cannot take place, for it is by this mechanism that the developing neurofibrillæ of the proximal segment are enabled to reach the distal segment. There is controversy, however, as to whether such fibrillæ lie within the bands or merely beside them.

From the foregoing facts it is seen that a *sine qua non* of successful peripheral nerve surgery is the accurate apposition of the ends of the severed nerve.

The motor end plate of the higher vertebrates is a flattened, branched termination of the neurofibrillar substance of the nerve fiber of which it is the end organ, and may be attached by collateral branches or represent a terminal branch of a long nerve fiber. It is beneath the sarcolemma, at which point of entrance the nerve fiber seems to lose its neurilemmal and myelin sheaths. The end plate overlies the heaped-up sarcoplasm of the sole plate, and between them is the fine meshed, periterminal network which connects the end plate and the sarcoplasm. This network disappears after degeneration and is probably regenerated by the neurofibrillæ.

The fibrillæ of the end plate degenerate in much the same way as the neurofibrillæ proper, and when

the resulting granular fragments have disappeared the nuclei of the sole plate become relatively more distinct and undergo amitotic cell division.

In nerve repair it is noted that the neurofibrillæ of the terminal portion of the nerve are regenerated in excess of the number needed. There is no evidence that the fibrillæ of the proximal portion are drawn to the terminal portion by any chemotactic substance, but there is evidence that the protoplasmic bands pass into the sarcolemma, making the neuromuscular system a closed unit. Developing fibrillæ have an enormous growth energy along the lines of least resistance, as is seen in neuromata in which scar tissue has blocked the growth. Sometimes (in experimental animals) they may bridge large gaps, following the line of a heterotransplant.

All evidence indicates that if easy access of the protoplasmic bands to the distal segment is offered, the regenerating neurofibrillæ will pass fairly rapidly to the distal end organs and that the principal problem of nerve suture then will concern the removal of scar tissue and hæmatoma between the segments.

Myelin may be laid down by the axis cylinders in any part of the neuromuscular system, and its appearance indicates complete nerve restoration.

The use of transplants in nerve suturing has not been very successful, probably because of scar-tissue formation.

Muscle changes following nerve section are strikingly similar to those in the distal nerve segment. Regeneration seems to begin before degeneration is complete. Loss of weight is a constant finding. Not all of the fibers become atrophied and some of them are enlarged by fatty, hyaline, and cedematous changes. The number of fibers is reduced. The nuclear changes are most striking. The nuclei become arranged in columns and groups, and increase in number by amitosis just as in the sole plate. This is probably a reparative measure.

The amount of muscular atrophy varies. This change has been ascribed to exhaustion following fibrillary twitching probably due to increased permeability to salts. The muscular twitching varies in degree, amount, and location in the muscle. Disuse has also been regarded as the cause of atrophy, evidence of this being seen in the atrophy in cases of causalgia in which voluntary disuse is necessitated by the pain. Again, atrophy has been ascribed to venous stasis (neuroparalytic hyperæmia), as is noted in ischæmic palsy. Stretching of a muscle does not cause atrophy (in experimental animals); on the contrary, hypertrophy results because of the loss of tone, and is not affected by posterior root section. From these facts the author concludes that the use of rigid splints to fix paralyzed muscles is not advisable. Langley believes that it is incorrect to say that a paralyzed muscle is overstretched by its antagonist.

Constriction of a nerve, if not sufficient to cause scar-tissue formation, does not seem to interfere with the rapid return of function, even following months of muscular disuse.

The author discusses Head's classification of cutaneous sensibility. Protopathic sensation (phylogenetically the older) includes the conduction of pain and the extremes of temperature. Epicritic sensation includes tactile localization and discrimination and the minima of temperature. Following nerve section the epicritic anæsthetic area is always greater than the protopathic area (spatial dissociation), and with regeneration the protopathic sensation encroaches upon and obliterates the area of total anæsthesia long before the return of epicritic sensation (temporal dissociation). Pollock has shown that the return of prick pain at the border of an anæsthetic area is not of itself an indication of returning protopathic sensation unless it is accompanied by a return of tactile sense; the anæsthesia following nerve section never extends completely over the area of skin supplied by that nerve, but is encroached upon by adjacent normal fibers which may account for the seeming return of prick pain. Epicritic sensation is much slower in returning, and may never fully re-appear.

Hyperæsthesia following nerve injury is not common, but may be extremely painful. It usually follows injuries to the median and internal popliteal nerves such as incomplete division or suture. The most constant lesion in such cases is neuritis. This pain tends to abate spontaneously, but may be controlled by alcohol injections. Accompanying the pain are trophic changes in the skin of the area, which becomes red and shining, seemingly atrophic, or a mottled bluish-red.

Following nerve suture and after the return of sensation, varying degrees of muscular power are noted. Frequently it is found that the response of the individual muscle is excellent, but that co-ordination is poor. Such failure must be due to the loss of afferent stimuli from muscles, tendons, and joints.

The greatest success in nerve suturing follows early primary suture with an attempt to restore as nearly as possible the pattern of the divided nerve.

P. R. BILLINGSLEY, M.D.

Guibal, P.: Late Paralysis of the Ulnar Nerve (Paralysies tardives du nerf cubital). *Arch. franco-belges de chir.*, 1923, xxvi, 207.

Paralysis of the ulnar nerve may appear many years after a fracture of the external condyle of the humerus. In a case reported by the author, that of a man of 48 years, it did not develop until forty-four years after a fracture of the elbow.

The paralysis is caused by the ulnar valgus produced by the fracture, the nerve being stretched over the summit of the oleocranon and irritated.

The aim of operative treatment should be to restore the carrying angle of the arm so that kinking of the nerve and its irritation by the oleocranon will be prevented. Supracondylar cuneiform osteotomy is a simple method of obtaining this result. Recovery from the paralysis is more rapid the earlier the operation is performed.

W. A. BRENNAN.

Heile: The Surgical Treatment of Sciatica (Zur chirurgischen Behandlung der Ischias). *Deutsche Ztschr. f. Chir.*, 1922, clxxiv, 1.

While rheumatic sciatica and that caused by disturbances in the pelvis are as a rule best treated by conservative measures, sciatica caused by trauma and local pressure due to inflammation usually requires surgical treatment. In the author's opinion, such local disturbances are more common than is generally assumed and often are associated with local changes in the nerve due to chronic inflammation.

The inflammatory constricting processes consist in a thickening of the epineurium, the oozing of inflammatory exudates, or extravasation of blood into the so-called intravaginal space, and lead to pressure on all of the nerve trunks or only certain ones. They are found following indirect as well as direct trauma. They may follow pulling or sprain or furunculosis of the gluteal region or lower extremities. Pelvic tumors are frequent causes which at first are often overlooked.

In four cases a dilation of the vena comitans was found at the level of the sciatic foramen. When inflammatory adhesions between the individual nerve trunks are present, the pressure in such veins must be particularly high. In one case an anomalously inserted piriform muscle which divided the nerve was the cause of the pain. Open injuries of the sciatic nerve caused by bullets are not always followed by sciatica, probably because, as the secretion has a chance to escape, there is no further disturbance of the nerve leading to ascending neuritis such as that following a not entirely aseptic primary nerve suture.

The operation for the relief of sciatica should be performed at the site where the anatomical change is to be expected. Resection of the sensory terminal branches by Stoffel's method was successful in only one of four cases. As a rule it is not applicable.

In sciatica of the nerve trunk the changes are found chiefly along the femur. Therefore it is here that the nerve should be exposed. This is done by making an incision from the sacrum to the greater trochanter, parallel with the gluteal fibers. It is necessary to have free accessibility, to spare the muscles, and to obtain good hæmostasis. The individual nerve trunks must be separated for a distance of 10 cm. and freed from their adhesions to the epineurium. After this the nerve does not require a special covering, as the musculature, which has been spared as far as possible, lies smoothly around it.

If the sciatica is of the roots, resection of the roots is necessary. Heile resected the fifth lumbar and the first, second, and third sacral roots, one after the other, without harm. In the case of a patient whose leg had been amputated, he resected the second, third, fourth, and fifth lumbar, and the first and second sacral roots. Exact neurological findings are necessary before root resection is done.

Lange's injections may precede the operation. If they are to help, they must be massive, consisting

at first of the injection of from 30 to 50 c.cm. of a 0.5 per cent novocaine solution into the nerve trunk. In cases of severe pain small amounts of 1 per cent solution are indicated. Later, from 100 to 200 c.cm. of physiological salt solution may be used. These injections may break up the adhesions between the individual trunks. A good result indicates the presence of such adhesions and that neurolysis may be beneficial.

HAGEMANN (Z).

SYMPATHETIC NERVES

Muller, G. P.: Surgical Relations of the Sympathetic Nervous System. *Ann. Surg.*, 1923, lxxvii, 641.

Abdominal pain and discomfort are the symptoms characteristic of surgical abdominal disease. Internal surfaces do not respond to previously unexperienced stimuli. The most important physiological phenomenon resulting from intra-abdominal irritation is spasm. Surgical treatment aims to remove the irritation causing the spasm. Kappis produces local abdominal anaesthesia by injecting the semilunar ganglia to block the splanchnics.

Jonnesco's resection of the cervico-thoracic nerve for the treatment of epilepsy has proved unsuccessful. Cervical sympathectomy has been applied also to exophthalmic goiter, migraine, trifacial neuralgia, and angina pectoris. In cases of epilepsy and goiter the operation has sometimes been followed by death. In glaucoma only the superior ganglion is resected; this is rarely done today and de Schweinitz does not recommend it. In a case of restriction of the visual field Abadie found that the resection of 1 cm. of the carotid sheath was followed by transient improvement. Ligation of the carotid had a similar effect.

The sympathetic nerve supply to the thyroid gland follows the superior thyroid artery. The inferior thyroid artery is probably accompanied by branches from the second cervical ganglion. Ligation of the superior thyroid is beneficial because of the resulting anaemia and the section of the nerve supply. Leriche noted a remarkable regression in the size of a goiter after unilateral sympathectomy on the superior thyroid artery. Leriche suggests that in toxic cases with tachycardia this operation might be supplemented by resection of the superior cardiac nerves and control of the exophthalmos by pericarotid sympathectomy. Odermatt reports that ligation is painless if the thyroid artery is dissected bare.

Leriche proposes resection of the auriculotemporal nerve to suppress parotid secretion in cases of parotid fistula.

In angina pectoris Jonnesco relieved the pain by removing the middle cervical ganglion, the sympathetic trunk, the plexuses about the inferior thyroid and vertebral arteries, and the inferior and first thoracic ganglia on the left side. Tuffier relieved pain in a case of discrete and fusiform aneurism of the thoracic aorta by freeing the aneurism and wrapping it with a strip of fascia lata. The freeing

of the aneurism probably removed the sympathetic plexuses.

Leriche, who was the first to describe peri-arterial sympathectomy, has reported about sixty-four operations. From 8 to 10 cm. of the adventitia are removed. A primary marked contraction of the artery is followed by dilatation which becomes attenuated in five or six days and disappears after three or four weeks. In Leriche's opinion the vasodilation and hyperæmia are the important factors. The author has done peri-arterial sympathectomy thirteen times on eleven patients. Instead of performing a sympathectomy, Handley injects into the adventitia 4 minims of alcohol at four equidistant points in the circumference of the artery. Primary vasoconstriction does not occur.

Along the course of the peripheral nerves, twigs are given off with increasing frequency toward the periphery and connect with or form the network on the blood vessels. Todd and Kramer state that the distal arteries are supplied by sympathetic fibers which have travelled to their destination along special nerve trunks instead of main vessels. In distribution, the nerves to the vessels correspond closely to the nerves to the skin and muscles of the same area. In a case in which Regard sutured the ulnar nerve there was almost immediate restoration of sensation with disappearance of vasomotor disturbances, but motion did not return until after six months.

Leriche classifies phenomena arising from injury to the peri-arterial sympathetic plexuses as follows: (1) a physiological reaction characterized by painful ischæmia and consecutive vasodilation, and (2) a disturbance of the physiological reaction from contraction of too long duration or an abnormally persisting dilation. Group 1 includes *stupeur arterielle*, Raynaud's disease, and possibly acrocyanosis. Sudden arterial spasm may be so intense as to lead to gangrene. It may occur after trauma, such as fracture, or in war wounds with contusion of the artery. Reichel observed two cases of segmental spasmodic contraction of a large vessel after trauma. According to Oppel, spontaneous gangrene may result from the over-action of adrenalin causing ischæmia with trophic disturbances in the arterial walls. For Raynaud's disease, which is distinctly a vasomotor disturbance with local syncope and asphyxial attacks and with gangrene as a terminal phenomenon, Leriche has performed a sympathectomy twice and the author once. In the author's case, that of a

man aged 70 years, the operation was performed on both brachials; the results were good. Muller suggests treating acrocyanosis by sympathectomy as an experiment to determine the permanency of the vasodilation.

In the second group, the only pathology noted, if any, is an adhesion of the vessels to the common sheath or an increase in the vascularization of the adventitia. Leriche ascribes trophic ulcers following nerve section to a disturbance of sympathetic innervation. Injury in regions remote from the large blood vessels may be accompanied by pain or trophic changes. Leriche states that after injury in a zone rich in sensory innervation the vasomotor disturbances may be due to orthodromic or antidromic reflexes referred from the injured point to the peri-arterial sympathetics.

Sympathectomy has given good results in: (1) causalgia following war wounds; (2) certain painful crises preceding gangrene caused by obliterative endarteritis; (3) vasomotor trophic neuroses with contractures; (4) painful stump; (5) trophic ulcerations of stumps and extremities; (6) trophic œdema; and (7) ischæmic paralysis of the forearm. The author reports gratifying results in Raynaud's disease, cervical rib, a painful stump from amputation eight years previously, and trophoneurosis with contractures and pain in the foot. In a case of beginning gangrene of the toes with calcareous tibial arteries and severe pain the pain ceased and the gangrene cleared up. A case of gangrene of the fingers was distinctly improved. In one case of painful stump the treatment failed. Two cases of Buerger's disease were slightly benefited. In the case of an elderly woman with acrocyanosis and arteriosclerosis following wound infection, hæmorrhage and death followed ligation of the femoral artery.

Causalgia is a painful vasomotor neurosis resulting from the irritation of a mixed nerve. In Leriche's opinion it is due to a neuritis of the peri-arterial sympathetic system rather than direct injury of the nerve trunk. In nine cases of causalgia following war wounds in which Leriche performed a sympathectomy, the treatment failed completely in two, caused satisfying improvement in two, and gave an excellent result in five. Platon reports excellent results in eighteen cases; in sixteen the pain stopped at once, and in two more gradually. Lewis reported instant relief in three cases of causalgia treated by the intraneural injection of 60 per cent alcohol.

WALTER C. BURKET, M.D.

SURGERY OF THE CHEST

CHEST WALL AND BREAST

Keynes, G.: Chronic Mastitis. *Brit. J. Surg.*, 1923, xi, 89.

In Keynes' opinion, the current ideas concerning chronic mastitis are vague and erroneous. He believes that only the more severe types of the condition reach the surgeon, and that the treatment given is often unsatisfactory.

This article is based upon a study of a mammary gland removed from every female body coming to a postmortem room during a given time, and upon male mammary glands, tissue removed from female patients operated upon for chronic mastitis, mammary glands removed because of carcinoma, and cases of chronic mastitis in which the condition was not severe enough to warrant operation. The autopsy material was carefully examined histologically, and the operating room material was studied histologically, bacteriologically, and chemically.

The study of the pathologic changes in chronic mastitis followed a histologic study of the normal breast from fetal life until the completion of the postmenopausal changes. The physiology of the breast is discussed in detail because it is the key to the pathology.

If the disease is an inflammatory condition it would be expected that infiltration of the connective tissue with leucocytes would invariably be present. Such an infiltration is not always present. The connective tissue is not packed with leucocytes and the particular points of their concentration are in close relation to dilated acini or along the course of the ducts. It is evident also that the round-cell reaction is greatest when the lumina of the acini or ducts contain fluid rich in disintegrated cells, particularly in breasts attempting to lactate. The predominating type of cell is the lymphocyte.

Other histologic changes are fibrosis, dilatation of the acini and ducts, epithelial changes of two kinds, and papillomata.

The condition is most commonly found in unmarried or childless women approaching the menopause. In such women it usually appears about ten years earlier than in women who have borne children. It is not rare in old men.

The author discusses the various theories regarding the cause of chronic mastitis but concludes that it is brought about by normal physiological processes in the breast. He considers the non-lactating breast an organ subjected to continual physiological stimuli but with no outlet for the products of its own activity. Resorption of the secretion must continually take place. The epithelial lining of the acini and the ducts is being constantly renewed and the old cells must be carried off. The breast is constantly pouring

an irritant into the lumina of the acini and ducts. When partial failure in the process of resorption occurs the irritation becomes increased and thus a vicious circle is established. The condition is not found in the lactating breast because the nipple is open, allowing free drainage of secretions and epithelial débris.

A comparative study of the mammary glands of animals which normally lactate throughout life after sexual maturity failed to reveal the presence of chronic mastitis.

Chemical study of the fluids from cysts of the breast which the author was able to obtain proved them to be more or less irritating. A footnote quoting a recent publication by Drew calls attention to the fact that cellular growth is stimulated by the products of autolysis of cells.

Keynes believes that the majority of other non-malignant conditions of the breast are simple clinical variations of chronic mastitis.

The breast tissue from cases of carcinoma studied by the author showed a marked increase in epithelial activity close to the advancing edge of the carcinoma. This fact suggests that the malignant cells might be influencing other cells through an irritating secretion. Drew is quoted also as pointing out that malignant tumor cells contain a substance which acts as a potent stimulus to cellular proliferation. From this fact the author concludes that chronic mastitis is a condition merely associated with carcinoma and should not be considered a precancerous condition; also that carcinoma and chronic mastitis may be caused by the same irritant. As proof that carcinoma may be produced by chemical irritants he cites the tar injections carried out in Tokio.

The treatment Keynes suggests is surgery for the severe forms of chronic mastitis and the judicious application of the X-ray for the milder cases.

WILLIAM E. SHACKLETON, M.D.

Pfahler, G. E.: Deep Roentgenotherapy in Carcinoma of the Breast. *Am. J. Roentgenol.*, 1923, x, 566.

Cross-firing is more difficult in carcinoma of the breast than in deeper carcinomata. The greatest possible relative depth dose must be delivered through the mammary region and this must be supplemented by radiation from the axillary portal of entry and the posterior surface of the chest sufficient to make a total of about a 120 per cent erythema dose.

Frequently it will be impossible to deliver sufficient radiation throughout the tumor. In such cases the roentgen radiation must be supplemented by the insertion of radium needles or emanation tubes.

It is the author's custom to use rays having an effective wave length of 0.17A produced by about 200 to 210 kv., at a distance of 62 cm., 4 ma., with a filter of 0.5 mm. of copper plus 2 mm. of glass plus a 25-mm. mattress. An erythema dose is obtained in about sixty minutes. As a rule one such dose is given on alternate days. Four portals of entry are used: the mammary region, the axillary region, the supraclavicular region, and the posterior thoracic region. This dose may be repeated after six weeks.

RALPH B. BETTMAN, M.D.

Gnant, E.: Results of Postoperative Irradiation of Carcinoma of the Breast (Resultate postoperativer Mammacarcinombestrahlung). *Forstchr. a. d. Geb. d. Roentgenstrahlen*, 1923, xxx, 326.

The author reports the results obtained in seventy-three cases of carcinoma of the breast treated by fractional doses of the X-ray. The cases were classified by Steintal's method. The results with regard to three-year cures agree with those of the Kiel and Rostock clinics. After the fourth year there was a marked decrease in the good results. In cases of recurrence which were not irradiated after the operation a second recurrence developed in 50 per cent after the fourth year. One-half of the patients remained free from recurrence at the end of three years.

BECK (Z).

TRACHEA, LUNGS, AND PLEURA

Owen, H. R., and González, A.: Pleural Epilepsy. *Ann. Surg.*, 1923, lxxviii, 6.

Pleural epilepsy is an epileptiform manifestation occurring when the pleural membranes are stimulated by physical or chemical agents. It occasionally complicates the surgical treatment of empyema. The first case of convulsions occurring during pleural lavage was reported by Roger in 1864. Since then about fifty-five such reports have been published.

Postmortem examination of fatal cases has failed to explain the cause of the condition, and its pathology also is very obscure. The exciting cause is usually the introduction of a foreign substance into the thoracic cavity.

Various theories have been advanced as to the etiology. The most important are the anaphylactic, the embolic, and the reflex. That the injection of water or bismuth paste could cause anaphylaxis seems improbable. The entrance of emboli into the systemic circulation without penetration of the lung tissue by a foreign substance is also difficult to explain. The reflex theory is the most satisfactory and is the only one supported by experimental evidence. The reflex appears to act through the pneumogastric nerves. The convulsion in pleural epilepsy is identical with that of idiopathic epilepsy. The diagnosis can usually be made from the negative history, the physical findings, and the fact that the convulsion develops during or immediately following surgical treatment of the pleural cavity.

The prognosis should always be guarded as death occurs in 35 per cent of the cases. A low blood pressure predisposes to a fatal termination. Many of these accidents can be avoided by using a non-irritating antiseptic solution for pleural lavage and injecting it slowly without great pressure. The trocars used should be sharp and should not penetrate the lung tissue. The treatment is symptomatic. During the attack, strong sedatives and vasoconstrictors are of value.

C. J. GLASPEL, M.D.

McGuire, F. W.: Lung Compression by Heavy Liquid Paraffin in the Treatment of Lung Tuberculosis, Bronchiectasis, and Lung Abscess. *Surg., Gynec. & Obst.*, 1923, xxxvii, 20.

The author used heavy paraffin to compress the lungs of cats and rabbits. He found that when compression anaesthesia with nitrous-oxide and oxygen was used he was able to inject from 150 to 200 c.cm. of oil without causing death, but that when the usual ether anaesthesia was induced the animal died after 100 c.cm. of the oil had been injected. Complete atelectasis was not produced in any of his experiments. Besides a pneumonic process in the lung, the pleura and the soft parts of the mediastinum were diffusely thickened in the form of patches. The pneumonic process was discovered at autopsy; it had not caused clinical symptoms.

There was no absorption of oil by the circulation; that which could not be recovered from the chest cavity in a free state could be easily accounted for by accumulation in the tissues. In some cases the oil passed through the mediastinum to the opposite side, possibly by a process of suction, and then became coarsely emulsified. In some instances it was transported through the lymph channels. Some of it was carried away also by phagocytes. Occasionally it became tied up in the proliferating process of the cells of the pleura and soft tissues as they became thickened. The authors affirm, however, that they were able to recover directly from the chest from 75 to 90 per cent of the oil injected. They believe that in the cases of patients who could be kept at rest, even more of the oil would remain in the chest cavity.

RALPH B. BETTMAN, M.D.

Jacobaeus, H. C.: The Cauterization of Adhesions in Artificial Pneumothorax Treatment of Pulmonary Tuberculosis under Thoracoscopic Control. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Electro-Therap., 45.

Beginning with endoscopy of the peritoneal and pleural cavities as a diagnostic method, Jacobaeus perfected a direct-vision method of thoracoscopically examining and treating adhesions preventing complete collapse of the lung.

In a recent article by Gravesen the injurious results of artificial pneumothorax when complete collapse of the lung is prevented by adhesions were discussed on the basis of cases traced from three to thirteen years after the operation. The outcome in these cases is shown in the following tables:

Table I.—Cases of Complete Pneumothorax without Adhesions.

	No.	Per cent
Able to work.....	23	70.2
Not able to work.....	1	2.1
Died from tuberculosis.....	11	23.4
Died from other causes.....	1	2.1
Unknown.....	1	2.1

Table II.—Cases with Complete Pneumothorax, but with Extensive Localized Adhesions.

	No.	Per cent
Able to work.....	14	33.3
Died from tuberculosis.....	28	66.6

Table III.—Cases with Pneumothorax Incomplete on Account of More or Less Extensive Adhesions.

	No.	Per cent
Able to work.....	5	11.1
Died of tuberculosis.....	39	86.7
Died of other causes.....	1	2.2

To date, about 200 cases have been operated upon by the Jacobaeus method. In this article Jacobaeus reports seventy-five cases and gives a detailed description of the technique employed.

The operation is performed under local anæsthesia and is preceded by a fluoroscopic examination. The trocar for the thoracoscope is introduced posteriorly at a point from one to three interspaces below the adhesions. The trocar for the galvanocautery is introduced either laterally or anteriorly. If the cautery is too hot it will burn the adhesions too rapidly and favor hæmorrhage.

The simple cord-like adhesions are not difficult to treat without causing discomfort. The broad adhesions, especially those near the apex, which are usually short, are very much more difficult to cauterize and in such cases the operation is associated with considerable pain. It was noticed that the nearer the cautery was used to the chest wall the greater the discomfort.

The danger of cauterization is hæmorrhage. Even when the greatest care is used, large vessels are occasionally encountered and burned off. In the opinion of the author, a hæmorrhage dangerous to life occurs only when an artery is burned through; serious hæmorrhage arises if during cauterization the lung is penetrated and an artery severed. A severe hæmorrhage occurred in only one case treated by Jacobaeus. The best way to control hæmorrhage is to increase the pressure within the pleural cavity as much as possible. This is done best by filling the cavity with salt solution.

The indications for cauterization are as follows:

1. Cord-like adhesions up to the thickness of the little finger which are found by X-ray examination. These may always be burned off without great risk.
2. Membranous adhesions. The possibility of operating upon such adhesions is best determined by thoracoscopic examination.
3. Surface adhesions. In cases with this type of adhesions great care is necessary. Only the granulation tissue which attaches the lung to the chest wall should be burned off. Cauterization of the lung itself is associated with the risk of hæmorrhage and

the opening up of tuberculous foci and cavities with consequent infection of the pleura.

The most common early complication of the cauterization is cutaneous emphysema. This may be troublesome for a day or two but then disappears. Of greater importance are the pleuritic exudates which may follow the operation.

The results in the seventy-five cases operated upon by Jacobaeus are shown in the following table:

Table IV.—Results in Author's Cases with Regard to Exudate.

	No.
1. Cases without exudate.....	36
2. Cases with slight exudate.....	19
3. Cases with long-lasting exudate and fever (6 with exudate before operation).....	11
4. Cases with long-lasting exudate and empyema (4 with exudate before operation).....	7
5. Cases with exudate first appearing from one to three months after operation.....	2

In the first group of cases the result was very favorable. After a few days of fever the temperature again became as low as before operation. The results were favorable also in Group 2, in which there was slight exudate which did not reach above the dome of the diaphragm; in one or two weeks this disappeared completely. In the last three groups the operation was probably associated with unfavorable clinical progress.

The results in these seventy-five cases tabulated according to the location of the adhesions were as follows:

Table V.—Results in Author's Cases According to Location of Adhesions.

Adhesions	Cases	Complete collapse of lung	Good clinical result	Incomplete collapse of lung
Apex.....	10	9	8	1
Lateral....	62	44	41	17
Diaphragm.	3	3	1	0
Total....	75	56	50	18

Jacobaeus concludes that although it has been impossible by his method to obtain clinical improvement in as high a percentage of cases with adhesions as in simple uncomplicated pneumothorax without adhesions, the procedure should prove of value in a limited number of cases with cord-like or membranous adhesions. McMICKEN HANCHETT, M.D.

Hampeln, P.: The Frequency and Cause of Primary Carcinoma of the Lung (Häufigkeit und Ursache des primären Lungencarcinoms). *Mitt. a. d. Grenzgeb. d. Med. u. Chir.*, 1923, xxxvi, 145.

From all reports regarding the frequency of primary carcinoma of the lung it is evident that in the last decade the incidence has increased considerably. Previously the condition was very rare. Only one report, that of Laache from Christiania, shows no increase (four cases in the last thirty-five years). In German hospitals seldom more than one case of primary carcinoma of the lung was formerly found at autopsy during the course of a year, but

today several are discovered. Carcinomata of other organs have not increased to the same extent.

The author attributes the increase in carcinoma of the lung to the effect of street dust. It has long been known that pneumoconiosis favors neoplasms of the lung. The nearly complete absence of lung cancer in Christiania may be explained by the dust-free air in that city and confirms the author's theory.

VON TAPPEINER (Z).

HEART AND PERICARDIUM

Levine, S. A., and Cutler, E. C.: Cardiomyotomy and Valvulotomy for Mitral Stenosis: Experimental Observations and Clinical Notes Concerning an Operated Case with Recovery. *Boston M. & S. J.*, 1923, clxxxviii, 1023.

The case reported was presented before the staff of the Peter Bent Brigham Hospital in Boston on May 23, 1923, four days after an operative attempt to decrease stenosis of the mitral valve. So far as the authors are aware, this is the only case on record in which such a surgical attack on a mitral stenosis has been completed. Doyen attempted a similar operation, but his patient did not survive.

A great deal of experimental work has been done on the production of valvular lesions in the heart. Of the many methods of approach suggested, the most successful are: (1) incision by a valvulotome inserted through the apex or down the aorta, and (2) the insertion of a small knife through a direct-vision cardioscope introduced through the left auricular appendage. By these methods it has been found possible to render the valves sufficiently defective for regurgitation, but no investigator has been able to produce more than a temporary stenosis.

The case reported was that of a girl 12 years of age who, following an attack of influenza in 1918, had a slight cough at intervals and some dyspnoea for two years. These were aggravated by exertion, and in the winter of 1921 even slight effort caused marked dyspnoea. During the six months from November, 1922, to May, 1923, the patient was kept in bed. Any effort to get her up was followed by an increase in the pulse rate (120-140), severe dyspnoea, and frequent pulmonary hæmorrhages.

The findings of the physical examination, laboratory tests, and X-ray examinations, and the electrocardiograms confirmed the clinical diagnosis of mitral stenosis without cardiac reserve. The heart muscle appeared to be in fair condition.

Operation was performed under ether anaesthesia, the ether being administered during the operation by means of a catheter passed into the nasopharynx. The exposure was gained by a Duval-Barast median thoraco-abdominal pericardotomy. After the heart had been rolled out of its position several times to accustom it to trauma, 0.5 c.cm. of a 1:1,000 solution of adrenalin followed by normal salt solution was dripped over it. The heart at once responded by vigorous and full contractions. It was then again rolled out and to the right with the left hand, and

with the right hand the valvulotome was plunged into the left ventricle at a point about 1 in. from the apex and away from the branches of the descending coronary artery, where two mattress sutures had been placed. The knife was pushed upward about 2½ in. until it encountered what seemed to be the mitral orifice. A cut was then made on turning it mesially and again on turning it in the opposite direction. Considerable resistance was encountered. On withdrawal of the knife, the mattress sutures were tied. There was no bleeding. Hot saline solution was dripped on the heart, and its action continued good.

The peritoneum and pericardium were closed with continuous silk sutures. The divided sternum was allowed to come together and encircled with silver wire. The periosteum was approximated by multiple interrupted sutures. In the subcutaneous tissues and skin fine silk was used.

Immediately after the operation the general condition seemed good. At this time the pulse was 140, the respiration 40, the systolic blood pressure 80, and the diastolic blood pressure 40. During the first forty-eight hours it was necessary to use morphine to control the pain in the chest. During the second and third days signs of complications in the upper lobe of the right lung were noted, but these cleared up toward the end of the third day and uneventful surgical recovery resulted.

A careful study of the heart findings could not be made until after the fourth day. The diastolic thrill and murmur were then distinctly diminished at the apex and the apical systolic murmur was increased. A pericardial to-and-fro friction developed and there was some evidence of pericardial effusion. The diagnosis was not confirmed by tapping because of the patient's condition.

In conclusion the authors state that at this stage of their observations they do not know definitely just what has occurred or what benefits, if any, have been gained from the operation. They do not feel very sanguine with regard to the latter, but believe that if any improvement occurs in the patient's vital capacity, this may be taken as a definite indication that the stenosis has been somewhat relieved. The case demonstrates, however, that surgical intervention for the correction of mitral stenosis is without special risk and should encourage attempts to alleviate a chronic condition for which there is no other treatment. McMICKEN HANCHETT, M.D.

ÆSOPHAGUS AND MEDIASTINUM

Glogau, O.: Two Cases of Descending Retro-Æsophageal Abscess with Phlegmon of the Neck and Threatening Mediastinitis; External Operation Through the Vascular Route; Prophylactic Collar Mediastinotomy; Recovery. *Laryngoscope*, 1923, xxxiii, 290.

In the first case reported, that of a baby 11 months old, a swelling on the neck was associated with difficulty in swallowing and breathing, a septic tem-

perature, chills, and characteristic pressure pains along the muscle and in the jugular fossa. These symptoms pointed to a threatening mediastinitis due to the descent of a retro-oesophageal abscess which was detected on pharyngoscopic examination. The original cause of such descending abscesses in babies is usually a submucous abscess in the vallecula.

In the second case the symptoms were similar to those in the first, but in addition there were pressure pains and swelling on the other side of the neck. The abscess cavity had already crossed the midline and was encroaching upon the vascular sheath of the opposite side. With the exception of a cold, no etiological factor was demonstrable.

In both cases there was a solid mass of indurated tissue around the vascular sheath. Only the thorough pharyngo-laryngoscopic examination, through which the level of the suspected pus cavity was ascertained, pointed the way and induced the operator to cut through the indurated mass in front of the carotid artery to evacuate the pus. The sealing of the apparently healthy anterior and posterior mediastinum prevented the pus from encroaching upon this important interstice between the vital organs and thereby warded off such dangerous complications as suppurative mediastinitis, pericarditis, pleuritis, lung abscess, and general septicæmia. The typical external drainage of the descending abscesses by way of the vascular sheath, combined with sealing of the mediastinum, proved to be a life-saving operation.

GUY L. BOYDEN, M.D.

MISCELLANEOUS

Pinchin, A. J. S.: Primary Intrathoracic Neoplasms. *Practitioner*, 1923, CX, 422.

The author discusses some of the twenty cases of primary intrathoracic neoplasms that have come under his observation within the last two years.

Of the growths arising in the mediastinum, sarcoma is the most common, while of those originating in the lungs, carcinoma is the most common.

Sarcoma usually occurs between the fortieth and fiftieth years of age and affects males more frequently than females. The symptoms may be slight. At first there may be dyspnoea, cough, and pleuritic pain but little sputum. Later the sputum may be profuse. Both in this disease and in carcinoma of the lung cachexia is not a definite sign until the later stages. Sarcoma arises in the lymphatic structures

of the thorax, molding itself around them. The nerves and arteries, though surrounded, are not disorganized, but the veins are frequently invaded. The growth spreads by direct extension, usually invading only one lung, more frequently the right. Finally, because of the increase in the size of the tumor, pressure symptoms are noted. The signs are as indefinite as the symptoms. In the early stages bronchitis may be present. As the mass increases the signs may become more obvious and include signs of pressure, retrosternal dullness, clubbing of the fingers, etc.

The condition must be differentiated principally from lymphadenoma, tuberculosis, and aneurism.

In cases of lymphadenoma other glands besides the mediastinal nodes are involved, the disease usually appears later, and crises often occur. The patient with tuberculosis appears much sicker than the patient with a neoplasm. The temperature curve in tuberculosis is characteristic. In sarcoma there is usually no fever. In tuberculosis affecting one lung there is retraction of the diseased lung with emphysema of the other, the sternal note is more resonant, and the heart is displaced to the affected side. In cases of neoplasm the sternal note is dull, even if the lung is collapsed, and the heart is little displaced. In tuberculosis the breath sounds are moister than in sarcoma. If in cases of sarcoma the condition is confined to the mediastinum, both apices will be clear, while if it has involved one lung the other apex at least will be free; this is much less apt to be true in tuberculosis. The differentiation of aneurism may be very difficult. Pain is usually more severe in aneurism, and œdema and enlargement of the veins are rare.

Primary carcinoma is more common than is generally believed. It usually occurs somewhat later in life than sarcoma. It may manifest itself as a circumscribed lobular or a diffuse lesion and its symptoms vary accordingly. As a rule it is unilateral. Bronchiectasis is common. The tumor is apt to undergo degenerative changes. Cough is usually the earliest symptom. Hæmoptysis also occurs early. The differential diagnosis from tuberculosis is difficult. A flat percussion note, absence of the tubercle bacilli, absence of fever, absence of signs at the apex, continuous hæmoptysis, and the involvement of a large lung area without signs of cavity formation speak in favor of carcinoma and against tuberculosis.

RALPH B. BETTMAN, M.D.

SURGERY OF THE ABDOMEN

ABDOMINAL WALL AND PERITONEUM

Gallie, W. E., and LeMesurier, A. B.: **Living Sutures in the Treatment of Hernia.** *Canadian M. Ass. J.*, 1923, xiii, 469.

In the authors' opinion the recurrence of hernia after operation is due largely to the ineffectiveness of the type of operation performed rather than lack of skill on the part of the operator or faulty after-treatment. In experiments on rabbits in which they tested various kinds of suture material they found that the usual amount of scar tissue forming after the division of fascia and aponeurosis was not sufficient to withstand the strain to which these structures are normally subjected and that overlapping and scarifying the edges of the divided fascia and aponeurosis increased the probability of permanent union. When sutures of living fascia were used the results were very much better, as these became folded into rounded cords of great strength. Such a suture is better than catgut as it is not absorbed and continues for all time to perform the function for which it was intended. It is preferable to non-absorbable materials such as linen and silk because it is composed of living tissues which are non-irritating and heal solidly into the structures through which they pass without showing any tendency to cut out when they are subjected to ordinary physiological strain.

In the insertion of a fascial suture a needle with a large eye is used. Catgut is tied around the end of the fascia to prevent splitting, and every second or third stitch is anchored by a slip knot. When the first suture has been used up, a second may be attached to it in the same way as pieces of tennis gut are fastened together, and the sewing continued.

The general plan of the authors' operation resembles that of the Bassini operation. The sac is removed and the various muscles and fascia are thoroughly cleared. A piece of fascia lata about 10 in. long is removed from the opposite thigh and threaded on a needle with a large eye. The first anchoring suture is passed through the rectus sheath and muscle close to their attachment at the pubic bone and then securely fixed into the periosteum and the termination of Poupart's ligament. The suture is continued outward, fixing the internal oblique muscle to Poupart's ligament, and, after knotting, continued backward as a second suture line superimposed on the first. These sutures are drawn sufficiently taut to make them lie flat but no attempt is made to draw the aponeurotic structures tightly together. The external oblique is either closed with catgut or woven together with a narrow strand of fascia.

In a series of sixty difficult cases operated upon by the authors in this manner there have been no

recurrences after a period of at least two years. The procedure is indicated especially in all cases of direct hernia and all cases of oblique indirect hernia occurring for the first time in persons of middle age or older. It is, of course, unnecessary in children and young adults with recently discovered oblique hernia.

Theoretically this type of operation would be of equal value also in cases of femoral hernia. The femoral ring could be closed off effectively by a strip of fascia anchored into Poupart's ligament and crossing the mouth of the crural canal to a second anchorage in the pectineal fascia or the periosteum of the ramus of the pubic bone.

C. J. GLASPEL, M.D.

Dowd, C. N.: **Tuberculous Peritonitis.** *Ann. Surg.*, 1923, lxxvii, 632.

The patient whose case is reported was first operated upon by Dowd when she was 5 years old. A simple laparotomy was done. The peritoneum was found studded with tubercles, the omentum had become a contracted mass, and a large quantity of ascitic fluid was present. The patient then remained comparatively well for several years. Fifteen years later she was again operated upon because of attacks of vomiting and pain in the region of the appendix. At the second operation the peritoneum was found free of tubercles. Adhesions had formed about the uterine appendages, and the appendix was buried by them. The walls of the cæcum were thickened. Microscopic examination of the removed appendix revealed no evidence of tuberculosis.

Following this operation the patient was apparently well for five years but then had a recurrence of the attacks of pain in the lower abdomen. At a third operation the peritoneum was found to be free of tubercles. The tubes and ovaries, which were encased in inflammatory tissue, were removed. On microscopic examination the condition proved to be bilateral tuberculous salpingitis. Since this operation the patient has remained well and free from pain, and in the last year has gained 24 lbs.

This case demonstrates the ability of the body to take care of a general peritoneal infection and proves that tuberculosis of the pelvic structures is very persistent.

VERNE G. BURDEN, M.D.

GASTRO-INTESTINAL TRACT

Blackburn, C. B.: **The Nervous Mechanism of Functional Disorders of Digestion, with Special Reference to Hypertonic and Hypotonic Dyspepsia and Nervous Colitis.** *Med. J. Australia*, 1923, i, 145.

While the term "functional disorder" implies absence of organic disease, there is always an under-

lying cause and for this a careful search must be made.

The direct control of the digestive functions is in the sympathetic nervous system, but as there are numerous connecting paths with the central nervous system and with such independent nerves as the hypoglossal and glossopharyngeal, many outside influences may be of importance. There seems to be no doubt that afferent impulses reach the brain from the digestive organs but these are probably taken care of by the subconscious mind.

Psychic influences have an effect upon digestion, and in hyperexcitability of the central nervous system afferent impulses may have an abnormal effect. In a person with nervous dyspepsia the common peripheral reflexes are often greatly exaggerated. During nervous strain, indigestion is a frequent complaint. In fluoroscopic studies of the stomach in a number of cases of nerve-racked patients made during the war the author found hyperperistalsis and shortened emptying time.

As the alimentary tract is under the control of the splanchnic nervous system, disorders of any one section should be considered in the light of their effects upon the entire tract. The dyspepsia associated with disease of the gall-bladder and the colitis so often associated with appendicitis are concrete examples. The treatment should be directed toward removal of the cause, but the author warns against the indiscriminate removal of the appendix for colitis because the latter probably antedates the appendiceal inflammation; appendectomy is to be regarded as merely an adjunct to treatment.

Blackburn directs attention to the relation between septic conditions of the mouth, nose, and throat, and functional disorders of digestion.

Persons with colitis often eliminate from their diet one article of food after another until they are in a condition of inanition and vitamin deficiency.

In functional dyspepsia the symptoms and complaints are extremely variable. Pain and discomfort may be located anywhere in the abdomen, but are not as apt to be constantly limited to a definite area as in organic disease. Flatulence and gas are common complaints and persons so troubled rapidly acquire the habit of alternately inflating and deflating the stomach. Drowsiness after meals followed by profound depression and extreme exhaustion is a fairly certain sign of hypersecretion of a highly acid gastric juice.

In making a diagnosis it must be borne in mind that the functional dyspeptic may vary his symptoms from day to day. X-ray studies are valuable because they definitely indicate whether the stomach is of the hypertonic or the hypotonic type. Frequently definite information of this kind will assist the patient in overcoming the trouble. It should be remembered that the chief factor in recovery will be the removal of the underlying cause. The patient's mental state insofar as it is affected by overwork, worry, domestic unhappiness, and unrest, must be understood. As these patients frequently

fear a tumor or other organic disease, a complete X-ray study is helpful. The diet is of less importance than the manner of eating and thorough mastication of the food.

Drugs are sometimes useful. Bromides are employed for their sedative effect. Belladonna may be used in cases of hypertonic stomach. Strychnine should be given only to the apathetic person with a hypotonic stomach. Alkalies relieve the local gastric discomfort. Other measures such as rest, massage, the taking of a holiday at regular intervals, postural treatment, and attention to associated conditions are not to be neglected.

VERNE G. BURDEN, M.D.

Cole, L. G.: Gastric Ulcers. *J. Am. M. Ass.*, 1923, lxxxi, 261.

Gastric ulcer can be diagnosed by means of the roentgen ray as definitely as a fracture of an extremity, and if the X-ray is properly employed it is far more reliable for the diagnosis of ulcer than the Wassermann test is for the diagnosis of syphilis. Moynihan says that 50 per cent of the diagnoses of gastric ulcer made by ordinary methods are erroneous, and that the roentgen ray is now an indispensable diagnostic aid.

The five different types of spasm are: (1) the prepylorospasm, involving the pars pylorica; (2) the pylorospasm, involving the pyloric sphincter; (3) the postpylorospasm, involving the cap; (4) the cardia spasm, involving the cardiac orifice; and (5) a narrow sulcus in the pars media.

Spasm of the stomach is manifested by: (1) direct evidence; (2) distortion of the rugæ; (3) a deep sulcus opposite the crater.

By serial roentgen examinations frequently repeated one may study the gross pathologic changes of gastric ulcer, the size and shape of the crater, the amount of induration surrounding it, its location in the stomach, and its increase or decrease in size during periods of exacerbation or recession of symptoms.

The diagnosis of gastric ulcer has been made from: (1) the presence of a fleck of bismuth subnitrate or barium in the crater of the ulcer; (2) syndromes; and (3) the morphologic changes in the walls of the stomach. The first two are unreliable, but the pathologic change in the wall of the stomach can be definitely shown and it is on this, and this only, that the diagnosis can be made accurately.

There are six types of ulcer: (1) the deeply penetrating, (2) the burrowing, (3) the large shallow floor ulcer, (4) the small round or oval ulcer, (5) the mucosal and submucosal ulcer, and (6) the healed ulcer with gross hour-glass contraction or slight dimpling of the mucosa.

The deeply penetrating ulcer involves all the coats of the stomach and is shown in the roentgenogram by definite signs: (1) a diverticular projection from the stomach, a bismuth shadow at the lesser curvature; (2) immovability of the diverticular shadow under palpation; (3) the presence of bis-

muth remains in the diverticulum; (4) the presence of a hemispherical gas bubble above the bismuth patch; (5) sharply defined drawing-in of the greater curvature, causing the so-called hour-glass contraction; (6) displacement of the pyloric portion of the stomach to the left, especially noticeable in males, with nearly vertical position of the lower part of the greater curvature; (7) marked diminution in the motility of the stomach; (8) antiperistalsis of the stomach; (9) the presence of a tender spot acutely sensitive to pressure, giving a sensation of resistance, and situated above the umbilicus in the region of the left rectus muscle. This type of ulcer is readily recognized in the fluoroscopic examination and in a single plate.

The burrowing ulcer burrows toward the pylorus between the mucous and serous coats of the stomach, stripping one coat from the other. The barium-filled crater has the appearance of a long tongue. This type of ulcer must not be confounded with the penetrating ulcer, which penetrates into adjacent viscera or under the liver.

The large shallow, florid ulcer is easily recognized, but difficulty is experienced in determining whether it is a non-malignant ulcer or an ulcerating carcinoma. In cases in which the crater measures 2 cm. or more, the surgeon during the operation or the pathologist on sectioning the specimen is often unable to determine whether the lesion is or is not malignant. Approximately 5 per cent are apparently malignant. The portion of the gastric wall which is infiltrated with small round cells and connective tissue is rendered less pliable than the normal gastric wall, and therefore the peristaltic waves are obstructed as they progress toward the pylorus and the involved portion of the gastric wall which is outlined by the barium has constantly the same shape throughout.

Small round or oval ulcers have small craters which involve the mucosal, submucosal, and muscular coats and sometimes cause a localized peritonitis with adhesions to adjacent viscera but do not penetrate the viscera. The crater averages about 1 cm. in diameter.

Mucosal and submucosal ulcers have small shallow craters which often are not detected by surgical palpation or inspection. The surrounding stomach wall is so pliable that ulcers near the sulcus of the angle may fold on themselves, forming a slit-like ulcer similar to an anal fissure, and can be detected only by opening the stomach and examining the mucosal surface. As many ulcers leave a scar, the X-ray findings must be considered. The results of healed ulcers vary from a small slight scar which will not be noticed unless it is diligently sought to gross hour-glass deformities.

Hour-glass deformity is frequently misinterpreted by the surgeon and the roentgenologist. Films made in both the prone and the erect positions are necessary for the diagnosis. A splenic sulcus or deep peristaltic wave on the greater curvature is frequently interpreted as an hour-glass constriction.

It is probable that the hour-glass stomach is sometimes formed spasmodically, but this must occur very rarely.

Dimpling of the mucosal coat resulting from the healing of a small round or mucosal ulcer is due to scar tissue and is not an indication for surgery.

HOWARD A. MCKNIGHT, M.D.

Fischer, H.: Resection of the Stomach for Ulcer; Immediate Feeding with the Duodenal Tube.

Ann. Surg., 1923, lxxvii, 773.

The patient whose case is reported was a woman 49 years of age who complained of pain in the abdomen and loss of weight which had persisted for two months. The pain often began shortly after the ingestion of food. Attacks of nausea were frequent but not associated with vomiting. A diagnosis of hour-glass stomach with ulcer on the lesser curvature was made by X-ray examination.

At laparotomy the stomach and gall-bladder were found buried by dense adhesions. The hour-glass form of the stomach was due to a penetrating ulcer midway between the cardiac and pyloric ends. A Billroth resection was done, the entire pyloric region being resected.

After the posterior walls had been sutured and before the anterior sutures were introduced an Einhorn duodenal tube was introduced into the jejunum through the anastomosis. Immediately after the anastomosis was completed, 1 oz. of whiskey and 3 oz. of water at body temperature were given through the tube. Four hours later the administration of Einhorn feedings every two hours was begun. Water was given between feedings to allay thirst. On the eighth day the tube was withdrawn and a semi-soft diet then given by mouth. No pain, nausea, or any other inconvenience followed this procedure. The method was first reported by Anderson in *Annals of Surgery* in 1918.

HAROLD M. CAMP, M.D.

Vaccari, C.: Lipomata of the Intestine (Contributo allo studio dei lipomi dell'intestino). *Arch. ital. di chir.*, 1923, vi, 589.

Vaccari finds only sixty-nine cases of lipoma of the intestine reported to date. His own case was that of a man 60 years of age. Examination led to the diagnosis of intestinal occlusion. On laparotomy a fixed induration in the right iliac fossa was found to be an invagination of the last portion of the ileum. In this area the intestine was covered by exudate so hard that it resisted all attempts at disinvagination. Intestinal resection followed by terminal closure of the stump and side-to-side ileocolic anastomosis was therefore done. The patient died two days later. Autopsy revealed diffuse fibrinous peritonitis. In this case all the chief symptoms of invagination were absent.

Early diagnosis and immediate operation are essential for good results in such cases as statistics show that the mortality is very high when operation is deferred until after forty-eight hours from the

onset of the abdominal symptoms. Vaccari did not see his patient until about sixty hours after the onset of the condition.

The muscular tissues of the intestine constitute a barrier to the development of lipomata arising in the intestinal walls. Lipomata which originate in the submucosa grow toward the intestinal lumen, and those which form in the subserosa have a tendency to rise from the side of the peritoneal cavity. In examining the resected portion of the intestine in the case reported, Vaccari discovered that there were two distinct lipomata of the intestinal wall, one subserous and the other submucosal, which were separated by a double stratum of more or less altered smooth muscle fiber, circular and longitudinal.

Although several writers have suggested that lipomatous neoforations and true lipomata may be formed through metaplasia or degeneration of connective tissue cells, Vaccari did not observe any cellular elements demonstrating such a transition.

W. A. BRENNAN.

Haden, R. L., and Orr, T. G.: Upper Intestinal Tract Obstruction. *J. Missouri State M. Ass.* 1923, xx, 185.

In a series of experiments upon animals the authors found that following upper intestinal tract obstruction there is a rapid fall in the blood chlorides and a rise in the carbon dioxide combining power of the plasma. Later there is a rise in the non-protein nitrogen and urea nitrogen. The rise in nitrogen, however, does not occur until the chlorides have been depleted. The rise in the alkali reserve as evidenced by the increase in carbon dioxide combining power of the plasma is an incident in the chloride metabolism. The chlorine combines with the toxic body or bodies probably in the form of hydrochloride, and the sodium combines with carbonic acid to form sodium bicarbonate.

The rôle of the chlorides seems essentially protective, neutralizing, or antitoxic. Sodium chloride is very effective in the treatment of the toxæmia of intestinal obstruction. If it is given at the onset of the obstruction the rise in nitrogen may not occur. If it is given after the rise in nitrogen has begun, a rapid fall usually takes place. Since there is practically always a heightened alkali reserve, alkalies should not be given. It is quite possible that similar treatment will be of value in other conditions characterized by a similar chloride metabolism.

The dosage of sodium chloride should be regulated by the blood chlorides as the toxæmia varies in different cases. In dogs the initial dose is approximately 1 gm. per kilo of body weight in 10 per cent solution. In clinical cases as much fluid as possible should be given with the necessary amount of salt. The maximum amount of fluid which can be given will usually require at least a 3 per cent solution of sodium chloride.

CARL D. NEIDHOLD, M.D.

Lepoutre and Mouchet: Intestinal Intussusception: Thirteen Cases of Acute Intestinal Intussusception in Infants (Sur l'invagination intestinale: treize cas d'invagination intestinale aiguë chez l'enfant). *Bull. et mém. Soc. de chir. de Par.*, 1923, xlv, 387.

Mouchet discusses the salient points in thirteen cases of acute intestinal intussusception in infants from the service of Lepoutre of Lille. The condition occurs more frequently in young infants than is generally believed. Ten of the thirteen infants were less than 1 year of age and eight were males. The frequency of intussusception in the first year of life and the predominance of the ileocæcal variety may be due to lack of fixity of the colon.

Early operation is of importance for successful results. The findings of abdominal palpation may be masked by the liver, contraction of the parietes, or distended intestinal loops, but the condition is indicated by paroxysmal attacks of violent pain associated with vomiting and the passage by anus of bloody mucus in the case of a previously normal nursing infant. If rectal examination is done early, blood will be found on the examining finger before blood is expelled.

Before a lump is palpable a careful examination demonstrates localized tenderness, resistance of the abdominal wall, and firmer consistency of an intestinal segment than normal. Fever occurs in more than half the cases.

Of the thirteen infants whose cases are reviewed, one died before an operation could be performed and seven died after operation. Pouliquen reports eleven recoveries in fourteen cases treated surgically, and Peterson twenty-two recoveries in twenty-eight cases operated upon. In fifteen cases of intussusception in which Peterson did a resection, there were eleven deaths and four recoveries. Two of Lepoutre's cases treated by intestinal resection were fatal.

Reduction is usually possible when operation is performed early. In nursing infants, and especially when conditions are unfavorable, resection is extremely serious. According to Peterson, recovery results in not more than 20 per cent of cases so treated. Lepoutre therefore prefers forcing reduction at the risk of producing lacerations.

Operation offers the only chance of cure, but in certain cases which are toxic from the onset death results within a few hours in spite of very early surgical treatment.

In one of Lepoutre's cases, that of an infant aged 9 months, in which the abdominal wall was closed in three layers and an adhesive plaster applied, the wound broke open during a violent attack of coughing on the seventh day and a loop of intestine appeared. Several hours later the intestine was reduced under anæsthesia and the abdominal wall sutured in mass with silver wire. The child recovered. Postoperative evisceration followed by death a few hours later occurred in two of Mouchet's cases. Ombrédanne states that the constant straining of

the infant is sufficient to break the sutures. Mouchet holds that the reduced invagination invites sepsis and an attenuated infection interferes with the healing of wound edges. Savariaud maintains that evisceration will not occur if the aponeurosis is sutured with horsehair or silk. Broca states that in the cases of nursing infants it is important to leave the laparotomy sutures in place for a long time. According to Veau, the abdominal wounds of nursing infants do not cicatrize as well as those of children. Therefore he leaves a fenestrated adhesive plaster on the wound for at least twenty days. Ombrédanne removes the stitches on the eighth day while supporting the abdominal wall about the wound between the thumb and index finger to prevent evisceration, and after cleansing the abdomen, applies a suitable compress and adhesive plaster bandage which is changed as necessary during a period of twenty-five days. Mouchet recommends wrapping a plaster several times around the abdomen.

Relapses are rare. In forty-six cases reported by Peterson there were two recurrences. It is possible that they may be prevented by fixation of the intestine or appendectomy. Ombrédanne and Mouchet believe that in cases of old intussusception, difficult reduction, large mesenteric glands, and an indurated, atonic ileal or cæcal wall, fixation is of little use, and that quick action is of most importance. If the intussusception is recent, reduction easy, and the intestine little altered, Mouchet fixes the external band of the cæcum and the first part of the ileum to the parietal wall. Jalaguier, Grisel, and Peterson hold that inflammatory changes in the appendix may incite the spasm that originates the intussusception. Mouchet always does an appendectomy after reduction because of the change in the appearance of the appendix. Whether the condition of the appendix is primary or secondary has not been definitely determined.

Veau states that occasionally an intussusception becomes very rapidly irreducible, but Broca considers this exceptional.

WALTER C. BURKET, M.D.

Muennich, G. E.: Unilateral Intestinal Exclusion.
Surg., Gynec. & Obst., 1923, xxxvi, 773.

Intestinal exclusion is an operation frequently indicated in abdominal surgery. It was first performed by Trendelenburg in 1885. Several years later von Hacker advised the operation for cases of fistula and adhesions of the bowel. Salzer reported its use in cases of tumor of the cæcum in which resection of the cæcum was not advisable or possible. Von Heberer, working in von Eiselsberg's clinic, first described the technique accurately on the basis of a large number of animal experiments and extensive clinical experience.

By unilateral exclusion, Muennich means the procedure by which the gut is completely severed and the proximal end is implanted into the side of the distal end. The method has not met with approval among English and American surgeons,

as Moynihan, Warbasse, and Keen are of the opinion that it has no advantages over entero-anastomosis except in disease of the ileocæcal valve. It must be admitted that back-flow or regurgitation of faecal material is not always eliminated.

Muennich meets this chief objection to the operation by citing eight clinical cases. In five cases of tuberculosis of the ileocæcal valve and partial intestinal obstruction in persons ranging from 21 to 35 years of age he resected the ileum just proximal to the valve and, after closing both ends of the small bowel, implanted the distal end of the ileum into the transverse colon. All of these patients have remained well for from four to seven years after the operation. In the three additional cases the operation was performed for adhesions obstructing the ascending colon subsequent to appendiceal peritonitis, for adhesions due to a tumor of the hepatic flexure of the colon (inflammatory), and for an infiltrating, adherent, inflammatory tumor of the ascending colon which did not permit resection. In all of these cases convalescence was uneventful and the relief has been permanent. Three patients of this series have been examined with the X-ray to determine whether or not there is regurgitation of faecal material. This was found in only one and was without clinical symptoms.

In explaining the regurgitation the author states that in the ascending colon there are antiperistaltic waves which bring the fluid fæces back to the cæcum several times. If the ileocæcal valve is competent, peristaltic waves force the fæces onward toward the anus when the quantity in the ascending colon has reached a certain volume.

In a few cases the regurgitation and consequent dilatation of the bowel have necessitated later resection. De Quervain reported such a case and suggested that in intestinal tuberculosis and cancer the intolerance of the ulcerated bowel sets up a hypermotility of the affected segment which empties it rapidly and does not permit regurgitation with absorption.

The author concludes that the operation of unilateral exclusion is indicated chiefly in ileocæcal tuberculosis when resection is contra-indicated, in inoperable cancer of the colon, and in inflammatory and malignant tumors causing stricture of the bowel. It is superior to simple entero-anastomosis because it eliminates strain on the strictured area, and is better than bilateral exclusion because external fistula is avoided. JOHN W. NUZUM, M.D.

Friedenwald, J., and Wiest, P. F.: Some Observations on Duodenal Alimentation. *N. York M. J. & Med. Rec.*, 1923, cxvii, 655.

In the authors' method of giving duodenal alimentation the tube is swallowed to the 55 cm. mark in the morning, a small glass of water is given to increase peristalsis, and the patient, lying on his right side, is then required to make slow swallowing movements which will gradually pass the tube to the 75 cm. mark.

To determine whether the tube is in the duodenum or not, one of several methods may be used. One is aspirating with a syringe; a slight yellowish (bile-stained) fluid indicates that the tube is down far enough. Another method is the injection of air from the syringe. A loud gurgling sound indicates that the end of the tube is in the stomach, and a fainter and more distant gurgle, that it is in the duodenum. If the tube is only in the stomach the air can be withdrawn, but when it is in the duodenum this is impossible. If these methods fail, fluoroscopy will clearly show the position of the bulb.

When the tube is securely placed, any liquid food may be administered. The authors prefer a mixture of milk sugar and raw egg. At first, the amount should be 100 c.cm. every two hours. Alimentation should be begun early in the morning and discontinued late in the evening. The quantity of the milk and egg mixture may be increased gradually up to 300 c.cm. No unfavorable effects due to the metallic bulb have been observed. The mouth should be frequently rinsed with an antiseptic wash.

Satisfactory results have been given by this treatment in cases of gastric and duodenal ulcer of a severe type, atony associated with prolapse of the stomach and intestine, the vomiting of pregnancy, nervous vomiting, and cases of surgical operations on the stomach in which nausea, vomiting, and discomfort recurred. A number of cases are reported.

ROBERT M. GRIER, M.D.

Wheelon, H.: Duodenal Motility. *N. York M. J. & Med. Rec.*, 1923, cxvii, 652.

Recent studies of a number of experimenters, including Cole, Luckhardt, Phillips, Carson, Wheelon, and Thomas, have pointed to the conclusion that, in principle, the sphincter acts in the same way as any other portion of the gastro-intestinal tract, the differences depending upon differences in the mass and gradients of contractile units.

The striking difference between gastric and duodenal motility is the apparent absence of segmental contractions in the stomach. Alvarez claims, however, that movements slightly resembling such contractions have been seen recently in the fundus. In the duodenum this condition must be brought into correlation with peristalsis.

In repeated animal experiments it has been shown that the sequential contraction of the duodenum, when occurring in a series of repeated variations, arises from a low tone level and increases rapidly to reach its maximum synchronously with the closure of the pyloric sphincter. The second contraction, although arising from a higher level, is completed after the stomach has begun to relax and while the peristaltic wave in the duodenum is announced by the increased activity of the sequential contractions. The first segmental contraction in the duodenum following the arrival of the peristaltic wave is completed synchronously with that of the sphincter about three seconds after the beginning relaxation of the antrum. The first segmental contraction then en-

tering upon its positive phase acts to carry on the function of the pyloric sphincter in that its positive phase is completed along with that of the sphincter and while the peristaltic wave is gaining strength in the duodenum. Once the positive phase of the peristaltic wave is established, the sphincter need no longer remain closed because the gastric (antral) portion is in a state of relaxation preparatory to the passage of a succeeding peristaltic wave.

In conclusion the author makes the following statements:

1. In the duodenum of the experimental animal two types of motility are noted: first, segmental contraction, and second, peristaltic waves.

2. Peristaltic waves in the duodenum bear a definite relation to the sequences of motor activity in the antrum and pyloric sphincter.

3. Hence, peristaltic waves in the duodenum may be considered as having their origin in the stomach.

ROBERT M. GRIER, M.D.

Braithwaite, L. R.: The Flow of Lymph from the Ileocaecal Angle and Its Possible Bearing on the Cause of Duodenal and Gastric Ulcer. *Brit. J. Surg.*, 1923, xi, 7.

Braithwaite's interest in the flow of lymph from the ileocaecal angle began with a case diagnosed as acute appendicitis in which the appendix was found only slightly congested but the ileocaecal glands were jet-black and a chain of jet-black glands could be traced up to the duodenum and the superior mesenteric vessels. There were also two black glands on the greater curvature of the stomach, 2 in. from the pylorus. The pathologist's report on the appendix and glands from the ileocaecal angle and stomach groups stated that there was no evidence of malignancy. The proximal third of the appendix mucosa was deeply pigmented, and microscopic study showed masses of pigment inside the phagocytic cells disseminated in the interglandular tissue and following the vascular channels. The glands were abnormal in their central sinuses, containing plasma and no lymph.

Since the observation of this case Braithwaite has tested the normal flow of lymph from the ileocaecal region by postmortem injections and animal experimentation and by the injection of indigocarmine on the operating table. In this manner it was found that there is no communication which passes from the appendix to the lymphatics of the pelvis, that a few vessels pass to the retroperitoneal space in the right iliac fossa, and that the dye passed repeatedly inward to the small intestine and outward to the ascending colon, and sometimes to the glands around the trunk of the superior mesenteric artery. Most of the lymph passed deeply to join the lumbar group, some of it passed upward over the head of the pancreas to the group of glands along the inner border of the curled duodenum, and some passed through this group to the duodenal wall itself and occasionally beyond the pylorus, in two cases reaching the chain of glands along the common duct.

Further investigation determined the flow of lymph through the omental lymph vessels which carried the dye more slowly to the greater curvature of the stomach.

Studies of lymph-gland pathology and cases in which the lymph glands were tied showed aberrant or retrograde flow of lymph.

The author concludes from his investigations that dyspepsia, duodenal and gastric ulcers, cholecystitis, and even gall-stones may arise from appendiceal infections.

WILLIAM E. SHACKLETON, M.D.

Girode and Delbet: Eight Cases of Perforated Duodenal and Gastric Ulcer (Huit observations d'ulcères duodeno-gastriques perforés). *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 542.

This article reports seven cases of perforated gastric ulcer and one case of perforated duodenal ulcer. Three patients who were operated upon between thirty-six and sixty hours after the perforation died immediately after the operation. One who was operated upon in the tenth hour died of pleurisy. Four recovered. Five patients had no history of gastric trouble, two had been treated medically for a gastric condition, and one had had a gastro-enterostomy. Of those who recovered, one was operated upon five hours after the perforation, one at the end of ten hours, and two after forty-eight hours.

Some of the factors having a bearing on the prognosis are the length of time elapsing between the perforation and the operation, the size and site of the perforation, the presence of adhesions, the character and quantity of the stomach contents, and the amount of gastric secretion. A bacteriological study of the gastric contents was made in four cases. In two they were found to be aseptic, and in two, septic. The two cases of septic stomach contents were fatal.

In most cases the author resects the edges of the ulcer and closes with two layers perpendicular to the axis of the intestine in order to enlarge the caliber of the area operated upon. The technique is the ordinary pyloroplasty technique.

ROSCOE JEPSON, M.D.

Weil, A. J.: Cicatrization in Duodenal Peptic Ulcer (Zur Frage der Vernarbung des Ulcus pepticum duodeni). *Arch. f. path. Anat.*, 1923, ccxli, 136.

Recent investigations, chiefly those of Hart and his co-workers, have shown that duodenal ulcer occurs and heals with scar formation much more frequently than has been believed up to the present time. Such ulcer scars are found most commonly in the sixth, seventh, and eighth decades, but occur also in infancy, at puberty, and in the third and fourth decades.

The author examined nine cases macroscopically and microscopically. Most of the scars were on the posterior wall of the duodenum; an ulcer on the anterior wall has a much slighter tendency to heal. The appearance of the scars varies greatly; often

there are star-shaped figures in the mucosa. In other cases there are elevations of the mucous membrane which lead to an ulcer situated in the horizontal portion. This type of scar gives rise to scar diverticula which begin as two pocket-like, flat depressions at the side of the ulcer scar and may become converted into deep sacks by the pressure of the intestinal contents. The explanation for this is found in the fact that in the upper horizontal portion the duodenal wall is thin and flaccid. Most scar diverticula are situated above or below the anterior or posterior walls.

Such scars do not lead to stenosis, and carcinoma develops much less frequently in an ulcer of the duodenum than in an ulcer of the stomach. It is worthy of note, however, that the scars of duodenal ulcer are associated with hypertrophy of the pylorus which may be attributed to spasticity. Scar tissue was always found in the depths of the ulcer, extending into the subserous layer; the overlying portions of the intestinal wall, musculature, and submucosa with Brunner's glands, as well as the mucosa itself, had been destroyed; callous change of the walls was not found.

BUDDE (Z).

Fischer, H.: Primary Ulcer of the Jejunum. *Ann. Surg.*, 1923, lxxvii, 775.

The case reported was that of a woman 42 years of age who entered the hospital for the relief of intermittent gastric pain, dyspnea, profuse night sweats, and slight hoarseness. The attacks of pain originated in the epigastrium, radiated to the back, and persisted for from two hours to five days. They had begun several years previously and seemed to have no relation to the ingestion of food. There had been no vomiting. During the past two years, vertigo, palpitation, and chills had occurred at indefinite intervals.

The patient remained at the hospital for two weeks and was given a thorough examination. The only positive findings were occasional extrasystoles and a faint systolic murmur at the apex, which was not transmitted. The blood count showed 2,700,000 erythrocytes, 5,000 leucocytes, 76 per cent polynuclears, and 24 per cent lymphocytes. The hæmoglobin was 55 per cent and the blood pressure 110-50. The Wassermann test, the examination of the feces, and the X-ray examination were negative. The patient was discharged with a diagnosis of secondary anæmia of unknown cause.

Two months later she was re-admitted to the hospital complaining of increasing weakness, dizziness, dyspnea, and pain in the right loin which became worse at night and radiated to the right scapular region. Roentgenographic examinations on three occasions were negative. Blood was found in the stools daily. No definite diagnosis was made, and at the end of four weeks the patient was sent home.

Two weeks later she returned for an exploratory operation. All structures were found negative until the duodeno-jejunal junction was examined. At this

point an induration of the jejunum, the size of a quarter, was found. A diagnosis of primary ulcer of the jejunum was made and a retrocolic duodeno-jejunosomy was performed. Vomiting, which occurred during the first twenty-four hours, was relieved by gastric lavage.

Four months later the pain was gone, the patient had gained 10 lbs., and her appetite had returned, but there was still evidence of blood in the stools. In Fischer's opinion there is a possibility of malignancy.

HAROLD M. CAMP, M.D.

Hewes, H. F.: Infectious Colitis. *Boston M. & S. J.*, 1923, clxxxviii, 994.

Jones, D. F.: The Surgical Treatment of Ulcerative Colitis. *Boston M. & S. J.*, 1923, clxxxviii, 999.

HEWES states that the genesis of infectious colitis is not definitely understood. The condition may appear as a sequel to an infection or debility. It is characterized by oedema and engorgement of the tissues, profuse exudate, and, in severe cases, ulceration of the mucosa.

The cardinal symptoms are diarrhoea and prostration. There may or may not be abdominal soreness or pain. Nausea, vomiting, fever, and leucocytosis are often present.

The stools are usually small and loose, and contain mucus, pus, and blood. No specific bacteria are found.

On proctoscopic examination the mucosa of the rectum and sigmoid is found to be diffusely reddened, swollen, and oedematous, with much exudate and often with small bleeding points.

Tuberculosis and specific dysentery are ruled out by bacterial examination.

Cases of ulcerative colitis may be divided into three groups: (1) acute colitis of moderate severity, (2) acute fulminating ulcerative colitis, and (3) chronic or recurrent infectious or ulcerative colitis.

In the first group the condition persists for from one to four weeks, often follows infection, and becomes cured under medical treatment consisting of an initial dose of a saline cathartic followed by continued colonic irrigations with salt solution three or four times a day. After a period of twenty-four hours in which no food is given, a diet of lean meat, wheat gruel, and twice baked bread without butter is allowed. Bismuth may be administered. The patient is kept in bed.

If this treatment does not cure, the condition is severe and surgical measures are necessary.

In the acute fulminating type there is blood in the stools. The symptoms are extreme, there is great prostration, and death may follow in a few weeks in spite of treatment. An ileostomy should be done and the colon irrigated regularly with salt solution. If this does not check or cure the disease, colectomy is indicated.

In the chronic cases there is a history of many attacks with gradual loss of strength. The characteristic X-ray picture shows absence of haustration in all or part of the colon. Ulceration may have

resulted in constrictions of the lumen at certain points.

Cases of diarrhoea secondary to dietary faults and systemic diseases do not show the definite lesions of the mucosa on proctoscopic examination. This will also differentiate cancer. Infectious dysenteries are discovered by isolation of the specific organism.

In all serious cases an ileostomy with complete cleansing of the colon is indicated. Colectomy should not be done until other methods have been given a trial. In mild cases appendicostomy may give results. The opening should not be closed in less than a year.

JONES emphasizes the fact that in this disease the entire colon is involved from the anus to the ileo-cæcal valve.

In the milder cases appendicostomy is done (cæcostomy if the appendix has been removed) to allow irrigation of the colon. In severe cases ileostomy and colostomy are necessary. It is important to explore the entire large bowel. The colon is thickened, its capillaries are engorged, and the first row of glands are enlarged.

The disease may stop at one of the flexures, but this is rare. The lumen may be greatly narrowed. Jones has never seen involvement of the ileum.

CLAYTON F. ANDREWS, M.D.

Gottesleben, A.: Colon Anastomosis in Ileocæcal Invagination (Kolostomose bei Invaginatio ileo-cæcalis). *Zentralbl. f. Chir.*, 1923, 1, 438.

The author describes an operative procedure for the treatment of intestinal invagination described by Witzel and reports a case successfully operated upon in this manner, that of a child 16 months old. The operation consists in disinvagination followed by the application of a Witzel fistula and the placing of the tube in the tænia coli after opening of the cæcum. The tube is led into the lower end of the ileum through Bauhin's valve and serves to evacuate gas and fæces. The abdominal wound is sutured as far as its lower angle where the tube projects.

The advantages of this procedure are that it consumes little time, recurrence is prevented by the tube, and the fistula closes spontaneously after the removal of the tube.

The method is indicated for the prevention of postoperative injury following disinvagination in acute cases, and for palliation when an attempt at disinvagination fails and the patient's condition will not permit resection.

DUMONT (Z).

Craig, W. M., and MacCarty, W. C.: Involvement of the Lymph Glands in Cancer of the Cæcum. *Ann. Surg.*, 1923, lxxvii, 698.

Involvement of the lymph glands in carcinoma has long been recognized as an index of the extensiveness of the lesion as well as an aid in prognostication. Carcinoma of the cæcum confirms this belief.

Anatomists and physiologists have shown that the cæcum has a definite and well-organized lym-

phatic drainage which is a part of the ileocolic system. This ileocolic division of the lymphatics accompanies the ileocolic artery from its origin and is so closely associated with it that the branches of the lymphatic system derive their names from the neighboring arterial branches. Thus we have the anterior and posterior ileocolic lymph vessels and glands as well as the appendicular, ileal, and right colic vessels and glands.

As carcinoma is disseminated through the lymphatic system and the regional lymph glands, the point of initial metastasis, a series of 100 operative specimens were studied by Craig and MacCarty to determine the extent of metastatic involvement of the glands. As there are five divisions of the lymph channels and glands, it was necessary to determine also which one is most often involved. Each specimen was dissected out with care that all glands were found, and was studied microscopically for evidence of malignant involvement.

In order to organize the material into a classification as simple as possible the cases were grouped as follows: (1) cases in which there was no glandular involvement; (2) those with glandular involvement; (3) cases of colloid carcinoma, (a) with glandular involvement, and (b) without glandular involvement.

One hundred pathologic specimens and 1,033 associated lymph glands were examined. In 32 per cent of the cases there was metastatic involvement of the regional lymph glands. Lymph glands were found which were normal in consistency, yet palpable and plainly visible to the naked eye. The size of the intestinal lesion and the size and number of the regional lymph glands proved to be no criterion of the presence or absence of metastasis. Lymph glands simulating carcinomatous glands in size because of marked cellular infiltration and lymphoedema were found to be inflammatory. Glands too small to be palpated at the time of operation were found to be the seat of metastasis. The cases with glandular involvement also showed large and numerous inflammatory glands which could be distinguished only by the use of the microscope. Cases which showed involvement of a large number of glands pathologically usually proved to be highly malignant clinically. Predominance of the posterior ileocolic lymph glands is of significance as 71 per cent of all glands found and 64 per cent of those which showed metastatic involvement were in this region. Carcinomata without local metastasis usually protrude into the lumen rather than penetrate the wall of the cæcum, while those with metastasis usually involve the wall. The most common site is the posterior wall.

Carcinoma of the cæcum occurs most frequently in the fourth decade of life. Of the cases studied, 66 per cent were those of males.

Cases of annular carcinoma or those in which all of the wall was involved made up nearly 43 per cent of the series. In 35 per cent the growth was confined to the posterior wall. This explains why the pos-

terior ileocolic lymph glands were the chief area of metastasis and inflammatory reaction. The growth was confined to the anterior wall in 13 per cent of the cases. The ileocæcal valve was involved in 64 per cent. Colloid carcinoma was found in 20 per cent.

In conclusion the authors state that systematic microscopic examination is the only method of determining the presence of local or regional metastasis.

Aschner, P. W.: Subhepatic Abscess Secondary to Appendicitis. *N. York M. J. & Med. Rec.*, 1923, cxvii, 679.

Abscesses following acute appendicitis are usually described according to their anatomical location. Those occupying a position below the right lobe of the liver, in front of the kidney, and above the hepatic flexure of the colon, in Morison's pouch, have been classified inadvisedly as subdiaphragmatic.

The right posterior intraperitoneal fossa or subhepatic fossa is a pyramidal space transversely disposed beneath the overhanging margin of the liver. Its base, and most capacious part, rests against the right lateral abdominal wall, projecting just below the last rib. Its apex is formed by the upward slope of the margin of the left lobe of the liver. The liver and gall-bladder are its anterior boundaries throughout. Its posterior wall is formed by the upper part of the right kidney and the lower part and the crus of the diaphragm, and toward the left by the common bile duct and the duodenum.

To the left of the midline the fossa is a narrow cleft between the right lobe of the liver in front and the small omentum and the upper and anterior surface of the stomach behind. Above, the subhepatic fossa is bounded on the right by the right lateral ligament of the liver and on the left by the transverse fissure. Below, the boundary is formed on the left by adhesions between the margin of the liver and the anterior surface of the stomach, and on the right by similar adhesions of the great omentum and the transverse colon to the margin of the liver and the anterior wall.

A typical case of subhepatic abscess is that of a patient operated upon for appendicitis with more or less peritonitis who presents the usual post-operative improvement for one week or two and then manifests afternoon fever and polymorphonuclear leucocytosis without other subjective symptoms. Physical examination at first reveals no localizing signs, but sooner or later deep tenderness is elicited in the right upper quadrant just at, or below, the edge of the liver. Ultimately a mass deep in the subhepatic area and tenderness in the tenth and eleventh right intercostal spaces and the costovertebral angle are detected. As the mass may be ballotable into the loin, suppuration of, or about, the kidney is suspected. The grave signs of toxæmia noted in cases of subphrenic abscess are usually absent.

Because of the onset of remittent or intermittent fever and the absence of subjective or objective symptoms to indicate the true lesion, wound retention, subphrenic infection, hepatic abscess, or beginning pylephlebitis are considered. Then, as tenderness develops below the liver edge or in the costovertebral angle, the kidney is suspected. Finally as the mass becomes palpable in the right renal area, an abscess of the kidney or a perinephric abscess cannot be excluded with certainty.

The inflammatory exudate may resolve. If suppuration supervenes, the abscess may drain by breaking into the bowel, but this occurs rarely. As a rule surgical drainage is indicated. The approach should be made through a loin incision which permits adequate exposure without the risk of soiling the general peritoneal cavity.

HOWARD A. MCKNIGHT, M.D.

Lockhart-Mummery, J. P.: A New Method of Treating Ischiorectal and Other Abscesses. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Surg., 65.

The new method described is as follows:

The abscess is opened with a knife by a crucial incision in the usual way and the pus is allowed to flow out. The skin forming the outer wall of the abscess is then completely cut away so as to leave a large opening an inch or more in diameter. The interior of the abscess is untouched. A large, flat, moist antiseptic gauze dressing is then applied and covered with a protector to keep it moist and prevent it from sticking to the edges of the wound and interfering with drainage. The pad is large enough to absorb all discharge for twelve hours.

When the dressing is changed it will be found that the abscess cavity has completely vanished, only a flat shallow ulcer remaining. The ulcer may take ten days or two weeks to heal, but does not result in a fistula. The advantages of this method are: (1) that it is very simple; (2) that it is not in the least painful; and (3) that healing is very rapid and is not followed by a residual abscess, a fistula, or marked scarring.

CARL D. NEIDHOLD, M.D.

LIVER, GALL-BLADDER, PANCREAS, AND SPLEEN

Walcker, F.: The Collateral Circulation in the Portal System (Beitrag zur kollateralen Blutzirkulation im Pfortadersystem). *Arch.f. klin.Chir.*, 1922, cxx, 818.

The author reviews the literature on this little known subject and reports the findings of his own research. Examination of 160 cadavers revealed hepatopetal anastomoses in 5 per cent. In 4 per cent, accessory portal branches were found, which under certain circumstances would establish a collateral circulation if the chief vein were ligated. The subsidiary branches were at the most 1 mm. in diameter. These relationships are shown by a large number of illustrations.

NORDMANN (Z).

Turner, G. G.: A Case in Which an Adenoma Weighing 2 Lb., 3 Oz. Was Successfully Removed from the Liver; with Remarks on the Subject of Partial Hepatectomy. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Surg., 43.

Wright, G.: Primary Carcinoma of the Liver Excised by Operation. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Surg., 56.

Frankau, C.: A Case of Resection of the Liver for Malignant Disease Spreading from the Gall-Bladder. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Surg., 59.

Turner, P.: A Case of Excision of an Adenoma of the Liver Which Had Ruptured Spontaneously, Causing Internal Hæmorrhage. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Surg., 60.

Kidd, F.: A Case of Primary Tumor of the Liver Removed by Operation. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Surg., 61.

G. G. TURNER reported a case of adenoma of the liver in a boy 13 years of age. A lump in the right side of the abdomen was noticed ten days before his admission to the hospital following an attack of pain. On examination, a large lobulated mass could be seen and readily palpated in the upper right quadrant of the abdomen. It extended from the costal margin almost to the umbilicus and to the midline in front. On bimanual examination the mass appeared to extend from the right kidney behind to the abdominal wall in front and could be moved slightly antero-posteriorly. On percussion, there was dullness over it continuous with that of the liver above and of the kidney behind. There were no other noteworthy findings.

The symptoms, physical signs, and negative evidence led to the diagnosis of a rapidly growing unilateral renal sarcoma. A right rectus incision exposed a large lobulated tumor apparently arising from the right lobe of the liver. The left extremity of the tumor reached as far as the notch for the gall-bladder. There was nothing suggestive of a primary growth in the abdominal cavity.

The pathological report based on the frozen section stated that the tumor was of an unusual type, composed of liver cells, and probably not very malignant. The gall-bladder was removed with the tumor following the isolation and ligation of the cystic duct and vessels. The affected portion of the liver was drawn out of the incision as far as possible, and the stomach and colon were well packed away with large gauze pads. A light, bow-shaped stomach clamp with jaws 4 in. long was applied on the tumor side of the proposed incision and slowly tightened until it had a firm hold. This provided a convenient handle and helped materially in the subsequent manipulations.

With a large fully curved intestinal needle threaded with No. 3 chromic catgut, a series of sutures was then introduced into the liver substance on the proximal side of the proposed incision and parallel to it. These sutures were passed as deeply as possible into the liver tissue and almost reached the under-surface. Each was locked to its fellow and separately tied.

A sharp knife aided with scissors was used to incise the liver substance between the line of sutures and the clamp. There was some hæmorrhage, but it was not alarming. Branches of the hepatic artery were caught in ordinary artery forceps and subsequently ligated with fine catgut. The same procedure was carried out on the opposite side of the mass. After the incisions were made, the parts fell asunder and left a very large, formidable-looking gaping wound. The sides of the gap were easily approximated by four catgut sutures passed with the same needle on the proximal side of the hæmostatic sutures.

After the completion of the suturing there was still some oozing from the under-surface of the posterior part of the liver wound. Gauze was packed over the area and protected from contact with the hollow viscera by a strand of rubber tissue. A small tube was brought from the stump of the cystic duct.

The patient made an uneventful recovery and left the hospital on the twenty-fourth day after the operation.

The pathological report stated that, on the whole, the appearances pointed to an unusual type of hepatic adenoma in which the cells were more aberrant than is usual in an adenoma of simple type.

The patient was last seen one year and ten months after the operation. He was then in excellent health. He had developed very much since the operation and was much heavier and more healthy in appearance than ever before.

Turner drew the following conclusions:

1. The method described is suitable for dealing with every kind of wound necessary for resection of portions of the liver.
2. Small resections of the liver edge can be safely done by cutting into its substance obliquely so that the edges of the wound fall together like the flaps of an amputation and can be readily sutured by any simple method.
3. When the section of the liver must be done in close proximity to a malignant growth the actual division of the liver should be made with the cautery.
4. Occasionally the method of extraperitoneal resection after transfixion of the pedicle and elastic ligature may be peculiarly applicable.
5. The after-history of the case presented shows that a considerable portion of the liver tissue may be removed without interfering with the patient's subsequent health.

WRIGHT reported a case of primary carcinoma of the liver which was removed with the gall-bladder. Hæmostasis was obtained by clamping and ligating the spurting arteries and by means of a gauze pack left in the wound for three days. The patient is still alive and in good health. Wright has found that the simple method of cutting boldly through the liver substance is comparatively safe. The hæmorrhage from the cut surfaces may be easily controlled by an assistant through pressure with a hot swab. When the excision is complete the swab should be removed gradually, the vessels being picked up with

forceps and ligated in the usual way or by under-running them.

FRANKAU reported a case of malignant disease of the gall-bladder with evidence of infiltration of the liver. The gall-bladder and a wedge of liver tissue were excised. Hæmorrhage was brisk for the moment but was readily kept in check by digital compression. An attempt to suture the cut edges together failed because the ligatures cut out at once. A large fold of the great omentum was then brought up into the liver incision so that it overlapped both cut edges and the sutures were passed through both the omentum and liver. Complete hæmostasis was obtained. Recovery was uneventful. The patient was alive sixteen months later, but it has been impossible to trace him since then.

P. TURNER reported a case of adenoma of the liver which ruptured spontaneously causing a severe intraperitoneal hæmorrhage. The patient was operated upon on a diagnosis of ruptured ectopic pregnancy. The hæmorrhage was found to come from a ruptured tumor mass on the lower surface of the liver. The mass was removed with a Paquelin cautery. The charred area of the liver left after the removal of the tumor was about the size of the palm of the hand. There was no bleeding from this surface, but the patient died one hour after operation. Death was due to hæmorrhage rather than to the shock of operation.

KIDD reported the removal of an adenoma from the right lobe of the liver. About 2 in. away from the growth, splinting sutures of stout catgut were passed through the liver substance with Cullen's blunted needles, each suture taking a bite of about 2 in. and overlapping its fellow. When the sutures were tied the tumor, enclosed in a wedge-shaped area of liver tissue, was cut out. One or two large arteries which were spurting were picked up with artery clamps and tied off. Catgut sutures on a Cullen needle were then placed outside the splinting sutures on each side and the sides of the wound were drawn together. All hæmorrhage was stopped.

As regards reaction to the operation the patient did well, but died of heat stroke five days later. At that time an extraordinary heat wave was experienced and several other patients in the ward were victims of it. In the case reported, autopsy revealed little blood in the peritoneal cavity. The wound in the liver had been healing satisfactorily. In the region of the wound of the liver there was a little fibrinous peritonitis. No sign of a neoplasm could be found in any organ. The head was not opened. No cause of death was discovered.

CARL D. NEIDHOLD, M.D.

Fisher, W. H.: Biliary Lymphangitis. *Ohio State M. J.*, 1923, xix, 400.

The author calls attention to the importance of preventing the development of gross surgical lesions in cases of recent onset. The persistence of symptoms in spite of proper treatment indicates the need of surgical intervention to prevent extensive damage.

Four cases which are reported demonstrated the typical pathologic syndrome and the usual toxæmia. The condition is extensive, frequently involving the liver, the gall-bladder, the biliary ducts, and the pancreas. There is a noticeable infiltration of the surrounding tissues, and the lymph nodes are enlarged and hardened. Clinically there are signs of cholelithiasis, but no stones are found.

The liver and gall-tract infection should be considered hæmatogenous in origin. All foci of infection should be eliminated and surgical measures employed early. If the pancreas is involved, it may be advisable to drain the common duct. In the author's opinion the gall-bladder is the primary focus and its removal is the operation of choice.

WILLIAM J. PICKETT, M.D.

Einhorn, M.: A Few Points Regarding the Diagnosis and Treatment of Gall-Bladder Lesions.
N. York M. J. & Med. Rec., 1923, cxvii, 649.

In cases of stone or severe gall-bladder lesions the bile was found on direct examination by means of the duodenal tube to be turbid and yellow or greenish in appearance. On microscopic examination numerous cholesterol or calcium bilirubin crystals, pus cells, mucus, bacteria, a few red blood cells, and at times minute particles of concretions or mucus containing solid material were discovered.

The bile found in the duodenum usually contains bile from the liver mixed with gall-bladder bile. The author shows that the dark bile appearing after the instillation of magnesium sulphate is not merely gall-bladder bile. He believes that the changes in color of the bile are due to the reactions of these different substances on the liver.

In the diagnosis of gall-bladder affections Einhorn approves of the use of the X-ray only in cases complicated by stones, but cautions that often calculi do not show in the X-ray picture and that shadows do not always indicate stones.

Medical treatment of gall-bladder lesions is advised as a general rule. The drinking of a considerable quantity of water and hygienic living are important. The diet should be supportive—not limited to the degree usually advised. The instillation into the duodenum of argyrol, ichthyol, or mercurochrome may be undertaken with advantage. Carlsbad water, glycerine in teaspoon doses before meals, salol, and urotropin are frequently given.

The indications for surgery include:

1. Severe attacks of biliary colic appearing frequently and affecting the general health, especially those accompanied by a slight rise in the temperature.

2. Biliary colic accompanied by fever and a high leucocytosis with an increased polynuclear count and jaundice.

3. Pain in the gall-bladder region accompanied by chills and a high leucocytosis.

4. Indirect reflex symptoms, such as angina pectoris and cardiospasm, persisting for a considerable length of time and reducing strength.

5. Gall-bladder lesions with probable malignancy

When there are associated lesions in the abdominal cavity which require attention the operation should not be too extensive and, if possible, reparative processes should be left undisturbed.

ROBERT M. GRIER, M.D.

Leonard, R. D.: Secondary Signs of Gall-Bladder Pathology. *Am. J. Roentgenol.*, 1923, x, 521.

Leonard was prompted to determine the value of the X-ray in the diagnosis of gall-bladder disease by statements emanating from some of the leading American hospitals to the effect that the X-ray is practically valueless in this field of diagnosis.

In typical acute cases of gall-bladder disease the X-ray is not often required and operation merely confirms a previously certain diagnosis. Here the credit for diagnosis belongs entirely to the clinical tests.

The author divides X-ray evidence of gall-bladder pathology into direct and indirect evidence. The first includes demonstrable gall-stones and visible gall-bladders. In the second class are the associated pathologic changes produced in neighboring viscera. As in about two-thirds of the cases the diagnosis must depend upon indirect evidence, a comprehension of just what constitutes true secondary evidence of gall-bladder disease is of great importance.

The pressure of a distended gall-bladder on the duodenum frequently causes a more or less characteristic flattening of the duodenal cap. The pyloric antrum may exhibit pressure deformities. Adhesions fixing the gall-bladder to its surroundings frequently lead to deformities in the adjacent viscera. The stomach and duodenum may be abnormally fixed to the right side.

In arriving at a diagnosis on the basis of secondary or indirect evidence it is very important to make both a fluoroscopic examination and serial plate exposures. Direct evidence, such as visible calculi or a distended gall-bladder, is found only in a small percentage of cases, but faulty technique must account for a considerable number of failures to discover it. The patient must appear for the examination with the gastro-intestinal tract empty, and a complete examination of the gastro-intestinal tract should be made whenever possible.

JOHN W. NUZUM, M.D.

Hofmann, A. H.: Failure of Ligation of the Cystic Duct (Warum wird die Cysticusligatur insuffizient?). *Zentralbl. f. Chir.*, 1923, l, 220.

The biliary flow appearing after cholecystectomy cannot always be explained by slipping of the ligature. Ligation of the cystic duct may fail even in the absence of an increase of pressure in the biliary passages and in the absence of suppuration. This is due to the fact that the wall of the duct contains little muscle and therefore becomes changed to a thin, non-vascular area at the site of constriction. Moreover, there is absence of thrombus formation to favor closure. The ligature therefore cuts through

the cystic duct. To prevent this complication the autoplasmic knot used in ligating the ureter is recommended.

GRAHAM (Z).

Oliver, S. F.: Studies on the Bile and Biliary Diseases. *Cincinnati J. M.*, 1923, iv, 186.

Tashiro, S.: The Determination of Bile Salts in the Blood. *Cincinnati J. M.*, 1923, iv, 197.

Studies of the urine and blood show that in diseases of the liver and gall-bladder there is hepatic insufficiency. As a result of this the character of the bile is altered and a biliary form of toxæmia develops. The severity of the toxæmia is dependent upon the degree of the hepatic insufficiency. There is a direct causal relationship between the biliary intoxication and the development of cardiac and renal complications.

In cases of gall-stones successfully operated on there is a marked decrease in the bile-salt content of the blood. In one case it dropped from 0.63 to 0.04 per cent. The bile-salt content of ascitic fluid collected from a case of cirrhosis of the liver was 0.22 per cent, while similar fluid from cancer of the liver showed no trace of the salts. In pernicious anæmia there is no increase in bile salts.

SAMUEL KAHN, M.D.

Cameron, G.: Two Pancreatic Functional Tests. *Med. J. Australia*, 1923, i, 718.

Cameron examined a series of 161 patients to determine the value of the adrenalin eye test of Loewe and the estimation of the diastase content of the urine as tests of pancreatic activity. Whenever possible, the results were checked at operation or postmortem examination. The adrenalin eye test was conducted as follows:

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The test was found positive in the vast majority of cases of actual pancreatic lesions. Eighty per cent of patients with biliary tract disease and probably associated disease of the pancreas reacted positively. A positive reaction was noted also in 64 per cent of patients with arteriosclerosis. The conclusion is drawn, therefore, that the adrenalin eye test is not a specific test of the function of the pancreas. Other investigators have previously arrived at the same conclusion.

The test for diastase in the urine was found to be a very useful and accurate method for the diagnosis of pancreatic disturbance. Lesions of the pancreas with the exception of malignant disease and certain atrophic conditions were associated with an increase in the urinary diastase. In diabetes mellitus the value was either normal or subnormal.

Microscopic examination of the fæces revealed the presence of striated muscle fibers, fat globules, and fatty acid crystals in every case of pancreatic disease.

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In four of eleven cases the author observed a pathologic picture which, beyond doubt, was that of acute pancreatic necrosis, but did not exhibit the chief sign of that condition, namely, necrosis of the glandular tissue. In each of these cases there was a glassy œdema which entirely permeated and surrounded the pancreas. Tissue excised for microscopic examination showed inflammatory œdema without injury of the parenchyma. There was no hæmorrhage or corresponding hæmorrhagic exudate in the abdominal cavity. In every instance the etiological relationship of gall-stone obstruction of the common duct was clear. In two, typical necrosis of the fatty tissue was also present.

The development of the acute necrosis of the pancreas might have been caused by obstruction of the bile and its overflow into the pancreatic system in association with mechanical, chemical, or infectious injury. Fully developed pancreatic necrosis causes phenomena suggesting ileus, while in acute pancreatic œdema, pain on pressure and muscular tension are present in the region of the gall-bladder and are particularly severe also in a zone in the middle and the left side of the upper abdomen. From clinical and anatomico-pathological standpoints, the œdema of the pancreas is only a preliminary stage of necrosis.

The author attributes the results in his cases entirely to his practice of operating early in cholelithiasis. All four patients were operated upon within the first twenty-four hours and were cured.

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Volkman, J.: The Surgical Anatomy of the Vascular System of the Spleen (Zur chirurgischen Anatomie der Milzgefäesse). *Zentralbl. f. Chir.*, 1923, 1, 436.

This article is based on forty autopsies and operations. The splenic artery, which varies in length, was found to divide as follows: (1) behind or in the tail of the pancreas (40 per cent of the cases); (2) between the pancreas and the hilus of the spleen (50 per cent of the cases); or (3) at the hilus (10 per cent of the cases).

After injection of the vessels, roentgenograms made in two planes perpendicular to each other revealed the blood flow between the arterial regions and thereby indicated the best incision for resection of the spleen, the implantation of thyroid substance, etc. The best incision is that which, extending along the course of the vessels, curves down deeply. A marginal incision will cut across larger vessels coming from the hilus.

DUMONT (Z).

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The spleen is perhaps the most friable of all the abdominal viscera. Its rather superficial and somewhat fixed position under the ribs, its tendency to both physiological and pathological engorgement, and its fragile texture and thin capsule are factors favoring rupture when it is traumatized. Rupture occurs much more frequently in males than in females because of the greater exposure of the former to hazards. One-half of the cases are those of children and young adults.

The predominating symptoms are those of internal hæmorrhage. Shock, with its accompanying symptoms of subnormal temperature, a rapid thready pulse, pallor, cold perspiration, clammy skin, and falling blood pressure, is usually the first manifestation. Pain is the first and chief complaint and air hunger the second. The cause of death is usually hæmorrhage. Without surgical treatment, the mortality is 95 per cent.

Splenectomy, first performed successfully in 1893 by Riegner, has steadily gained favor and is now universally recognized by most authorities as the standard treatment. MORRIS H. KAHN, M.D.

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A typical case of chronic septic splenomegaly shows: (1) a chronic septic focus; (2) a massive splenomegaly; (3) leucocytosis in the early stages and an anæmia with leucopænia later; (4) recovery following eradication of the septic focus. Less constant features are: (5) fever; (6) hæmorrhages; (7) enlargement of the liver, lymph glands, and the lymphoid tissues generally; and (8) cirrhosis of the affected tissues. The condition is essentially a generalized reaction of the lymphadenoid tissues, the enlargement of the spleen being the most noticeable and characteristic feature.

The improvement that follows the removal of septic foci and the use of vaccines, the fact that the disease can be transmitted to dogs, and the frequent association of splenomegaly with endocarditis strongly suggest that septic organisms play a part in the etiology. These organisms must have a selective affinity for the lymphadenoid tissues. The spleen, liver, and glands are involved, and blood deterioration indicates invasion of the bone marrow. The spleen may become enormously enlarged but subsequently contract because of fibrosis.

Death may occur from hæmorrhage. A diagnosis is made by eliminating leukæmia, hæmolytic icterus, malaria, kala-azar, Gaucher's disease, and other disorders associated with splenic enlargement. The finding of a septic focus, tenderness over the spleen, and the blood picture of early leucocytosis with later anæmia and leucopænia are of diagnostic importance.

The treatment requires the eradication of the sepsis, particular attention being paid to the intestinal tract.

In the author's opinion many cases of Banti's disease and idiopathic splenic anæmia will fall in the group of chronic septic splenomegaly. He would also include in this group splenomegaly with endocarditis, Egyptian splenomegaly, enteritis and splenomegaly, oral sepsis and splenomegaly, and certain cases of senile anæmia.

In conclusion the statement is made that in all chronic splenomegalies of septic origin the underlying pathologic process is the same.

VERNE G. BURDEN, M.D.

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This report is the result of a study of the pathological findings and clinical records of sixty-nine cases of splenic anæmia subjected to splenectomy at the Mayo Clinic in the period from November 14, 1905, to September 1, 1920. Cases with a distinct hepatic cirrhosis in addition are also considered.

The article is summarized as follows:

1. A composite picture of the pathological findings in the spleen in splenic anæmia was found to be one of generalized fibrosis. While there were no findings in the splenic tissue that would enable the pathologist to make a positive diagnosis of splenic anæmia, the abnormality was as characteristic of this disease as in other diseases producing splenomegaly.

2. The degree of fibrosis of the reticulum seemed to vary in slight degree with the amount of arteriosclerosis, but there was no evidence to show that this fibrosis originated in or around the vessel walls.

3. The size of the malpighian corpuscles seemed to be affected by the degree of fibrosis, and the greater the fibrosis the more eccentric was the so-called central artery.

4. The splenic veins presented no marked abnormality or evidence of thrombophlebitis.

5. Dilatation of the sinuses was fairly constant and the reticular cells showed a proliferative activity. The syphilitic spleens resembled those of splenic anæmia in this respect.

6. The amount of lymphoid tissue present was usually below normal. The malpighian corpuscles were fairly well defined, but the so-called germinal centers were small and seldom seen. Areas of degeneration or fibrous nodules were not observed in the malpighian bodies.

7. By actual measurement it was found that the size of the malpighian corpuscles was within the normal limits, but the average size was below the average for the normal. The number of corpuscles for each square centimeter was found to be twenty-three.

8. Seventy per cent of the spleens showed that the number of malpighian bodies for each square area decreased and the size of the corpuscles became smaller as the size and the weight of the spleen increased.

9. The average weight of the spleens was found to be 1,015 gm.

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3. The size of the malpighian corpuscles seemed to be affected by the degree of fibrosis, and the greater the fibrosis the more eccentric was the so-called central artery.

4. The splenic veins presented no marked abnormality or evidence of thrombophlebitis.

5. Dilatation of the sinuses was fairly constant and the reticular cells showed a proliferative activity. The syphilitic spleens resembled those of splenic anæmia in this respect.

6. The amount of lymphoid tissue present was usually below normal. The malpighian corpuscles were fairly well defined, but the so-called germinal centers were small and seldom seen. Areas of degeneration or fibrous nodules were not observed in the malpighian bodies.

7. By actual measurement it was found that the size of the malpighian corpuscles was within the normal limits, but the average size was below the average for the normal. The number of corpuscles for each square centimeter was found to be twenty-three.

8. Seventy per cent of the spleens showed that the number of malpighian bodies for each square area decreased and the size of the corpuscles became smaller as the size and the weight of the spleen increased.

9. The average weight of the spleens was found to be 1,015 gm.

10. The average age of the patients with splenic anæmia was 33 years, and the number of males was about equal to the number of females. There was apparently no familial tendency.

11. The most common complaints were a mass in the left abdomen, gastric hæmorrhage, and weakness.

12. While abdominal pain was rarely given as the chief complaint, the histories brought out the fact that thirty-two of the patients had attacks of such pain at some stage of the disease. In many instances the pain was probably due to perisplenitis.

13. In the physical examination spleens designated as just palpable weighed from 250 to 500 gm., while spleens of approximately 1,000 gm. extended to the midline and almost to the level of the umbilicus.

14. The relation of the size of the spleen as given in the clinical records to the actual weight, and the fact that many adhesions were found at operation suggested that the spleen of splenic anæmia maintains a relatively normal position in the abdomen.

15. Physical examination showed twenty-four enlarged livers, while at the operating table twenty-six showed a definite cirrhosis and thirteen were larger than normal. The size of the liver seemed to have no relation to the size and weight of the spleen.

16. In the sixty-nine cases the average erythrocyte count was 3,700,000, the hæmoglobin 53 per cent, and the leucocyte count, 4,990. The

coagulation time and the fragility test were normal, and the Wassermann tests and the stool examinations were negative.

17. A composite chart of the blood counts made after the operations showed a gradual increase in the leucocytes up to the forty-fifth day. There was then a gradual decrease until the normal was reached in about seventy-five days. A similar result was shown by a composite chart in which the number of leucocytes found by counts made before the operation was taken into consideration.

18. A comparison of the number of lymphocytes in the differential count showed that the average was within the limits of the normal. A lymphocytosis did not seem to be a characteristic in this series.

19. In the study of the liver tissue in splenic anæmia, thirty of the cases showed a definite cirrhosis. The liver entirely normal in none.

20. The chief complaints of the thirty patients who had hepatic cirrhosis were the same as those of the rest of the series; hæmorrhage and abdominal mass were the predominating complaints.

21. Twenty-four of the patients with cirrhosis of the liver had ascites.

22. Twenty-three and three-tenths per cent of the patients with a cirrhotic liver died within forty days of the operation, while within the same length of time the death rate among the remaining patients was only 12.8 per cent.

GYNECOLOGY

UTERUS

Lochrane, C. D.: An Endometrial Adenoma of the Abdominal Wall Following Ventrisuspension of the Uterus. *J. Obst. & Gynec. Brit. Emp.*, 1923, xxx, 213.

In Lochrane's case a tumor mass developed at the site of an incision which was made for ventral suspension of the uterus four years previously. This mass varied in size with relation to menstruation, becoming larger during the periods. At a second operation the mass was found to be an endometrial adenoma in the abdominal wall due evidently to the implantation of endometrial tissue during the first operation. The cells were probably carried by the sutures.

HARRY W. FINK, M.D.

Latteri, F. S.: Inguinal Hernia of the Uterus (*L'ernia inguinale dell'utero*). *Arch. ital. di chir.*, 1923, vii, 39.

The author reports a case of his own, reviews seventy-eight of the eighty-five cases reported in the literature, and discusses the classification, pathology, anatomy, and embryology of this uncommon condition.

Latteri believes that in inguinal hernia of the uterus there is always a defect of conformation. For the uterus to become a portion of the contents of an indirect inguinal hernia, a close relationship between a defect in the normal evolution of the canal of Nuck and abnormal development of the genito-inguinal ligament is essential.

Inguinal hernia of the uterus may be total or partial. The gravid uterus and the uterus masculinus may be involved. In the literature the author has been able to find the reports of only twenty-five cases of total hernia. Of twenty-four in which the site was mentioned, thirteen stated that the hernia was on the left side and eleven that it was on the right. In seventeen cases the hernia was irreducible. Complete reduction was possible in only one. In fifteen case reports an anomaly of the uterus or vagina was mentioned.

Sixteen cases of partial herniation of the uterus were collected. Of eleven reports in which the site of the hernia was mentioned, seven stated that it was on the left side and four that it was on the right. In thirteen cases there was malformation of the uterus such as uterus bicornis or uterus bipartitus.

In ten cases in which the uterus was gravid the herniation was on the right side in five and on the left side in five. In one case of bicornate uterus, pregnancy was present in the right herniated cornua.

There were twenty-six cases of hernia of the uterus masculinus. Of twenty-two reports in which the site

of the herniation was mentioned twelve stated that it was on the left side and ten that it was on the right.

The principal symptoms are pain and an increase in the size of the hernial tumefaction during the menstrual period, lengthening of the vagina with gradual narrowing and deviation to the affected side, and the transmission to the hernial sac of movements impressed in the vagina. In partial uterine hernia, there is movement of the cervix. Pathognomonic symptoms of this condition when the uterus is gravid are a rapid increase in the size of the hernial sac, a placental souffle, fetal movements, and fetal heart sounds.

The treatment is surgical reduction, if possible, or total extirpation of the uterus.

SALVATORE DI PALMA, M.D.

Truesdale, P. E.: Uterine Fibromyomata. *Boston M. & S. J.*, 1923, clxxxix, 97.

The author presents a compilation of the end-results in 300 cases treated by operation and discusses the association of malignancy, sterility, and hæmorrhage with fibromyomata. In the cases reviewed there were four operative deaths, a mortality of 1.4 per cent. Two hundred and twenty-two of the women were married and seventy-eight were single. Twenty-five myomectomies were performed. Six of the patients were between 20 and 30 years of age, eighty-two between 30 and 40, 165 between 40 and 50, thirty-six between 50 and 60, nine between 60 and 70, and two over 70.

Malignancy was found in nine of the 300 cases. In six (2 per cent), the malignant changes were found in the uterus. In two others there was associated ovarian cancer, and in one a cancer of the breast.

In an investigation relative to the present condition of the patients information was received concerning 209. Eighty-six per cent of these reported themselves in good condition. Sixteen complained of some pelvic disturbance, mainly of bladder origin and associated with intestinal and minor nervous symptoms.

Fourteen had died since leaving the hospital, six of these from malignancy. The remaining deaths had no apparent connection with the pre-operative condition or the operative procedure. In five cases the cause of death was the extension of the process found at operation or a recurrence. Four of the nine women with malignancy are living and well. The postoperative lapse of time, however, is not noted.

The author believes that in spite of the present diligent search for early malignant changes, fibromyomata are too often overlooked and are not given

a place of sufficient importance in the etiology of malignancy. According to different writers, malignancy develops in from 1 to 10 per cent of cases of fibromyomata. In Truesdale's series its incidence was 2 per cent. Emphasis is placed on the importance of a careful examination of the fibromyoma before the operation is completed, as early malignant changes are difficult, if not impossible, to diagnose before operation.

The tendency of fibromyomata to prevent pregnancy was shown by the fact that sixty (27 per cent) of the married women in the series reviewed had never been pregnant and thirty-four had been pregnant only once.

In discussing the methods of treatment the author recommends the use of radium in hemorrhagic cases which cannot be operated upon. In the cases reviewed, myomectomy was the operation of choice for women under 35 years of age. In cases in which the menopause was prolonged by the presence of the fibroid, supravaginal hysterectomy was performed. Truesdale prefers the supravaginal hysterectomy in spite of the various reports of the occasional occurrence of malignancy in the cervical stump. His series showed no such postoperative changes.

C. FISKE JONES, M.D.

Corscaden, J. A.: The Limitations of Radiotherapy in the Management of Fibromyoma of the Uterus. *Am. J. Obst. & Gynec.*, 1923, vi, 42.

In the treatment of myoma of the uterus by radiation the selection of the case is the most important phase. Extra-uterine neoplasms and malignant growths of the uterus must be excluded. Chronic adnexal inflammation so slight as to escape diagnosis is not necessarily a contra-indication. Symptoms of toxæmia, anæmia unexplained by the loss of blood, local pain, tenderness, and a change in the consistency of the tumor or its rapid growth and large size may indicate inflammation, degeneration, or sarcomatous change which will render excision imperative.

Bleeding due to ulceration (polyps; submucous, pedunculated myomata) and blood or vascular disease (pernicious anæmia, familial telangiectasis) may not cease with the onset of the menopause. Pain associated with menstruation will cease, but pain occurring at other times may not. Urinary disturbances are not well relieved. Shrinkage of the myoma will almost always follow adequate doses of radium and the roentgen-ray, but the discomforts of the dosage which is necessary, coupled with the potential danger in the large mass, make operation preferable.

Radium should never be used in the treatment of women who may become pregnant as the sclerotic changes it causes predispose to dystocia. The X-ray should be reserved for cases in which hysterectomy is the only alternative as it may disturb the structure of an ovum and determine abnormal structure or development of the fetus.

EDWARD L. CORNELL, M.D.

Mallet, L.: The Treatment of Cancer of the Cervix of the Uterus (*Traitement du cancer du col utérin*). *Presse méd.*, Par., 1923, xxxi, 289.

Radium and the X-rays are now considered the agents of choice in the treatment of cancer of the cervix of the uterus. Up to the present time radium has been used most generally in France and America, and the X-ray in Germany. Combined treatment with radium and the X-ray is now being attempted.

The Germans have obtained very satisfactory results with deep X-ray therapy. Wintz radiates numerous fields measuring 6 by 8 cm. in such manner that the rays cross either the cervix or the parametrium as desired. The German school gives the applications in the shortest time possible and the lethal dose each time. In the author's opinion it is better to distribute the dose over a period of from four to eight days, thus reducing the shock due to the absorption of protein and the changes in the blood. The combination of X-ray and radium seems to assure a more complete and extensive effect in a short time without injuring the general condition.

The dose sufficient to destroy a basocellular epithelioma of the cervix is between 45 and 50 mc. This should be spread out over at least five or six days. Two tubes of 50 mgm. of radium filtered by at least 1 mm. of platinum in a black rubber catheter are inserted into the cervix and two tubes of 10 mgm. are placed in the cul-de-sac. The latter have a primary filtration of at least 2 mm. and are separated from the vaginal mucosa by at least 8 mm. of gauze to protect the mucosa from the soft gamma rays. A larger dose would endanger the rectum or bladder.

The effect of radium rays is rapidly lost with distance. A cancerous gland 4 cm. away from the cancer will not be affected.

The author reports a case in which combined radium and X-ray therapy was used. The result led him to the conclusion that with this method there is little need of surgical intervention. If operation is performed even three weeks after the application of radium the surgeon runs the risk of working in a field in which the cancer cells have been stimulated by the action of the radium; he opens the lymphatics, injures the tissues, and destroys protecting barriers. Therefore, in the author's opinion, radium therapy should not be combined with surgical intervention except in cases of cancer which resist both radium and the X-ray. ROSCOE JEPSON, M.D.

ADNEXAL AND PERI-UTERINE CONDITIONS

Vautrin: Tuberculosis of the Ovary and Pregnancy (*Tuberculose ovarienne et grossesse*). *Gynéc. et obst.*, 1923, vii, 193.

In the case reported the labor and the puerperium were normal, but on the twenty-second day after delivery the patient was taken with a sudden chill followed by fever of 40 degrees C. and pain in the lower left quadrant. Examination revealed a tumefaction in the left broad ligament, which was tender on deep palpation and distinct from the uterus.

About a month later fever without chills re-appeared with morning remissions and evening exacerbations. No pulmonary phenomena were observed.

Four months later, when the author took charge of the case, the patient appeared to be suffering from a chronic infection with hectic fever. Examination revealed a slightly subinvolved uterus which was movable and painless. The right adnexa were negative. In the left adnexa a tumefaction about the size of a large fresh fig was found attached to the broad ligament posteriorly and above. The mass was slightly tender and fixed. A diagnosis of lymphangitis of the broad ligament was made but the possibility that the mass was a suppurating dermoid was suggested. Three months later this mass enlarged rather quickly, filled the left iliac fossa, and became softer. A few days later it doubled in volume, dysuria began, and the urine became turbid.

Operation performed about thirteen months after delivery revealed a mass in the left broad ligament. This proved to be the left ovary which was enormously enlarged and adherent to the outer end of the tube, the sigmoid, and the bladder. Between the bladder and the mass an opening was found.

The patient made a slow recovery. Macroscopic and microscopic examination showed the ovary to be tuberculous. The parenchyma was affected more than the rest of the gland.

In the author's opinion the process developed originally in the parenchyma and the pregnancy and puerperium accelerated it.

SALVATORE DI PALMA, M.D.

Delannoy, E.: Embryomata and Mixed Tumors of the Fallopian Tubes (Contribution à l'étude des embryomes et des tumeurs mixtes des trompes utérines.) *Gynéc. et obst.*, 1923, vii, 301.

Delannoy reports a case of bilateral tumors of the fallopian tubes, one a dermoid cyst and the other a mixed tumor. The former weighed 275 gm. and the latter 470 gm.

In 1913, the patient, a woman 32 years old, was seized with violent abdominal pain particularly in the left lower quadrant. Constipation was present. A tumor was felt by the patient in the left lower quadrant. After the first attack she was well until 1917. She then had five more attacks before 1921. These were characterized by vomiting, abdominal distention, constipation, dysuria, and fever of from 38 to 38.5 degrees C.

In September, 1921, a posterior colpotomy was performed as a diagnosis of pelvic peritonitis had been made on account of the fever and the presence of a very tender mass in the cul-de-sac. As no fluid was found but, instead, a solid mass, a laparotomy was performed.

Ten cases from the literature are analyzed; one of them the author believes is doubtful. There seem to be no diagnostic symptoms except those of a solid or cystic tumor of the ovary. Malignant change in these tumors has never been observed.

SALVATORE DI PALMA, M.D.

Guillemin, A., and Morlot, R.: A Primary Epithelioma of the Fallopian Tube (Épithéliome primitif de la trompe de fallope). *Gynéc. et obst.*, 1923, vii, 326.

The authors report the case of a diabetic woman, 54 years of age, who was subjected to salpingectomy and total hysterectomy because of an epithelioma of the right tube. The appearance of ascites seven months later indicated a recurrence.

One hundred and sixteen cases of primary epithelioma of the fallopian tube have been reported in the literature. The diagnosis of this condition is difficult as other diseases very often cause the same symptoms, viz., intermittent abdominal pain, foetid leucorrhœa, and occasional uterine bleeding.

SALVATORE DI PALMA, M.D.

EXTERNAL GENITALIA

Shaw, W. F.: Carcinoma of the Female Urethra, with Notes of Two Cases Treated with Radium. *J. Obst. & Gynec. Brit. Emp.*, 1923, xxx, 215.

Carcinoma of the urethra is a rare condition, only about 100 cases having been reported up to the present time. It usually occurs in women over 40 years of age. As a rule the symptoms are irritation of the vulva and painful micturition. The growth begins in the urethral mucous membrane or the epithelium surrounding the meatus and invades the urethra secondarily. The inguinal glands are involved in only one-third of the cases.

The treatment may be operative removal or radiation. The majority of cases so far reported have been treated by surgery. One of the two operations usually performed for this condition is the resection of the entire urethra and part of the base of the bladder. A permanent opening into the bladder, either suprapubic or vaginal, is made. This treatment gives the best chance for recovery. The other surgical method is partial removal of the urethra with preservation of the internal sphincter. This is not followed by incontinence but is associated with greater risk of recurrence. The only non-surgical method is the application of radium. In the author's cases, which were treated in this manner, there was no local recurrence after three years, but in one a lymph node with metastatic cells was removed from the inguinal region.

HARRY W. FINK, M.D.

De Gironcoli, F.: An Anatomical and Clinical Contribution on the Study of Benign Tumors of the Female External Genitalia (Contributo anatomico e clinico allo studio dei tumori dei genitali esterni della donna). *Arch. ital. di chir.*, 1923, vii, 177.

The author reports two cases of benign tumors of the labia majora—one a fibroma, the other a lipoma—with illustrations showing the gross and the microscopic pathology. The cases reported in the literature he summarizes in a table. The following deductions are drawn from his study:

1. Benign tumors of the vulva are of connective tissue origin. The most common are fibromata. Less common are the lipomata with gradations from fibrolipomata to lipofibromata. Myofibromata are very rare. These tumors seldom undergo sarcomatous change. They vary in size from that of a cherry to that of an adult's head. The larger tumors almost always have a pedicle of the same composition.

2. Important etiological factors are: (1) a predisposition of the connective tissue of the parts affected, sometimes hereditary, and (2) trauma.

3. The tumors are usually derived from the sub-epidermal connective tissue. In rare cases they are derived from the round ligament.

4. The two forms are difficult to differentiate; histologic examination is essential.

5. The prognosis is generally good. A rare complication is pyæmia following ulceration of the tumor. Still more rare is sarcomatous degeneration.

6. The only efficacious treatment is vaginal extirpation of the tumor.

SALVATORE DI PALMA, M.D.

MISCELLANEOUS

Clow, S.: The Effects of Physical Exercise on Menstruation. *Lancet*, 1923, cciv, 1161.

This article is of interest from a statistical standpoint as the author questioned 1,818 girls between 11 and 25 years of age.

Before advice was given, 70 per cent stated that they were free from menstrual troubles. At a second interview, after advice was given, this figure was raised to 93 per cent.

It was found also that physical exercise, and even bathing, lessened the tendency to menstrual trouble. Before exercise was advised, about 5 per cent of the girls questioned were compelled to lie down because of a severe spasmodic type of menstrual trouble. This figure was reduced to 1.5 per cent by exercise and other measures. In conclusion the author states that exercise may be the future treatment of both menorrhagia and dysmenorrhœa.

WALTER A. STRANBERG, M.D.

Rongy, A. J.: Primary Sterility. *Am. J. Obst. & Gynec.*, 1923, v, 631.

During the twelve months preceding September 1, 1922, 192 women consulted the author for the treat-

ment of primary sterility. The majority had had some operative interference. The operations varied, including dilatation, cutting operations on the cervix, and operations to correct uterine displacements or to repair diseased fallopian tubes. In every case some combination of organic extracts was given as a supplement to the operative measure. The results of all of these methods of treatment were equally unfavorable. Only twelve of the patients became pregnant, and the probabilities are that the rest will remain sterile unless a new treatment considerably more effective than those now employed is discovered.

The average age of the patients in this series was 28.5 years. The average period of marriage was six and one-half years; the longest was seventeen years, and the shortest nine months. Twenty-two per cent of the patients suffered from irregular menstruation, the intervals ranging from two to nine months. One patient who began to menstruate at 16 years of age and menstruated very irregularly, stopped menstruating at the age of 20.5 years, and another, who began at 14 years, stopped at the age of 23 years. One patient stopped menstruating as soon as she was married, at the age of 24 years. She consulted the author three years later.

Fourteen per cent of the patients suffered from dysmenorrhœa. Many were compelled to remain in bed during the menstrual flow. Four per cent suffered from scanty menstruation. One patient had menorrhagia. Eighty-six were examined for patency of the fallopian tubes. In fifty-eight (68.8 per cent) the fallopian tubes were found to be open, while in twenty-seven (32.3 per cent) they were apparently closed.

The author now uses transuterine insufflation during abdominal operations as by this means he is able to establish the patency of the tubes with the least amount of trauma to the mucous membranes. He employs it also in examining patients subjected to plastic operations on the fallopian tubes. He finds that it may be employed very readily during the period of convalescence from the operation. The passage of the gas under pressure through the tubes may prevent the formation of adhesions around the distal openings.

The percentage of cases of sterility which are amenable to treatment is very small.

EDWARD L. CORNELL, M.D.

OBSTETRICS

PREGNANCY AND ITS COMPLICATIONS

Harbitz, F.: The Pathologic Anatomy of "Auto-Intoxications" in Pregnancy and Childbirth. *Surg., Gynec. & Obst.*, 1923, xxxvi, 767.

This article is based on material collected in the course of years from many postmortem examinations of patients from the gynecological clinic at Rik's hospital and classified from the anatomical point of view into the following seven groups: Group 1, puerperal eclampsia; Group 2, eclampsia without characteristic anatomical changes; Group 3, intoxications without convulsions but with the anatomical changes of eclampsia; Group 4, auto-intoxications in pregnancy and childbirth that appeared clinically as renal disease and anatomically as renal degeneration; Group 5, auto-intoxication in pregnancy and childbirth, in which degeneration of the liver predominated; Group 6, hyperemesis gravidarum; and Group 7, auto-intoxications in pregnancy and childbirth with nervous symptoms predominating.

The most important anatomical changes in these conditions were degenerations in the liver and kidneys.

The cases of excessive vomiting of pregnancy were of special interest; both the liver and the kidneys were involved, and in a few cases there was acute yellow atrophy.

The anatomical picture in the different groups was to a certain degree similar and the resemblance of these cases to cases of phosphorus, arsenic, and mushroom poisoning was of interest.

The syndromes and lesions were probably not due to bacteria as there were no signs of infection. The fact that hyperemesis occurred in the early months indicated that purely mechanical pressure of the uterus was not responsible. The uræmia of nephritis was ruled out by the fact that the kidneys showed only a degeneration. The marked degeneration of the liver and kidneys proved that reflex irritation or hysteria was not the etiological factor. Changes in the organs of internal secretion were probably the result rather than the cause of the symptoms. There is no doubt that the hypertrophy of the mammary glands and the growth of the corpora lutea are due to the fetus and the placenta. With regard to the suggestion that faulty metabolism may result in acidosis the author states that in this case also the fundamental cause may be some form of intoxication. The fact that eclampsia may develop in cases of hydatid mole, in which the fetus has been completely absorbed, and the fact that in eclampsia the fetus may show changes similar to those in the mother, suggest that the fetus itself is not the source of the intoxication.

The conclusion drawn from these considerations is that the symptoms and lesions of eclampsia and the other disturbances under discussion are best explained as due to intoxications originating in the placenta, the exact nature and mode of action of which we do not yet understand.

WILLIAM B. CAMPBELL, M.D.

Breed, W. B., and White, P. D.: Heart Disease in Pregnancy. *Boston M. & S. J.*, 1923, clxxxviii, 984.

Hamilton, B. E.: Notes on the Problem of Heart Diseases in Pregnancy. *Boston M. & S. J.*, 1923, clxxxviii, 987.

These two papers are based upon a total of 102 cases observed through pregnancy, delivery, and the puerperium and systematically followed up.

It was found that about 50 per cent of pregnant women who present cardiac symptoms or signs do not have organic heart disease. Heart disease in pregnancy is almost invariably rheumatic in type.

The prognosis must be based upon the functional capacity rather than structural change. In rheumatic heart disease there is a risk of maternal death, prolonged disability before and after delivery, permanent disability, loss of the child, and a tendency to rheumatic heart disease in the child.

WALTER L. STRANBERG, M.D.

Campbell, D. G.: Pregnancy and Heart Disease. *Canadian M. Ass. J.*, 1923, xiii, 244.

This is a report on 159 cases of pregnancy complicated by heart conditions which constituted 1 per cent of all cases admitted to the Montreal Maternity Hospital from 1905 to 1921. They are classified as follows:

1. Mitral stenosis, sixty-seven cases. There were twenty-six normal labors and four maternal deaths. One of the deaths occurred before, and three occurred after, delivery. Five of the other women are known to have died of heart failure within a year after confinement. The danger increases materially with subsequent pregnancies.

2. Mitral regurgitation, twenty cases. There were sixteen normal deliveries. Only one patient showed signs of collapse.

3. Aortic regurgitation with or without mitral regurgitation, ten cases. There were eight normal deliveries and only two cases of cardiac embarrassment. Subsequent pregnancies showed no proportionate increase in the cardiac disturbance.

4. Aortic regurgitation and mitral stenosis, seven cases. There was one normal delivery. All of the patients suffered permanent cardiac damage from the pregnancy.

5. Auricular fibrillation, ten cases. There were three normal deliveries and two maternal deaths.

All of the patients sustained grave cardiac damage from the pregnancy. The histories showed the fibrillation to be the result of valvular lesions.

6. Myocarditis, twenty-eight cases. There were fourteen spontaneous labors. Seven of the women died at about the time of delivery and others are known to have succumbed to heart failure subsequently. All of the patients showed defective response to effort, but endocarditis and pericarditis could be excluded as causes.

7. Aortic stenosis, five cases. Three of the patients progressed well. Two had associated myocarditis, and one of them died one month after delivery.

8. Congenital lesions with the appearance of pulmonary stenosis, two cases. Both of these patients had a normal, easy labor.

The author concludes with these generalizations: Auricular fibrillation, myocarditis, and mitral stenosis are adversely affected by pregnancy. When a woman with any one of these conditions becomes pregnant, abortion and sterilization should be done without waiting for signs of breakdown.

Women with mitral stenosis without myocarditis or previous heart failure are capable of bearing one or two children with safety, but each pregnancy injures the heart materially.

If close attention is paid to the symptoms and signs of heart failure, a breakdown in cases of mitral stenosis can be forestalled by the induction of labor or cesarean section. When decompensation is present, the former is more satisfactory.

Mitral and aortic regurgitation, aortic stenosis, and congenital lesions are not so seriously affected by pregnancy. The endurance of the heart muscle is of chief importance. CHRISTIAN D. HAUCH, M.D.

Jones, J. B.: Abdominal Pregnancy. *Virginia M. Month.*, 1923, 1, 147.

In the majority of cases of abdominal pregnancy there is a definite history of rupture in the early months.

The diagnosis may be extremely difficult or very easy, depending upon the stage of development. Pregnancy of this type will produce the same general picture as a normal pregnancy, but a peculiar menstrual history, the location of the growth, an empty uterus, general pelvic discomfort, and an early uterine souffle will aid in the diagnosis. The main point in the early stages is not to misinterpret the signs of rupture.

According to Beck's statistics, the best time to operate in the interest of the child is the thirty-eighth week. The operative danger arises mainly in the handling of the placenta. Beck has proved by experiment that the peritoneum can readily deal with three-fifths of a sterile placenta. He has collected a series of twelve cases in which the child was removed, the cord cut close to the placenta, the placenta with its membranes left *in situ*, and the abdomen closed without drainage. When it appears that the placenta can be removed safely, this should be done.

The author reports a case in which the left broad ligament was found spreading over the tumor and the placenta occupied the upper portion of the sac, extended down on the left to the level of the overlapping broad ligament, and received its blood supply from the mesosigmoid and the left broad ligament. The child was extracted and the cord clamped and cut close to the placenta. Complete enucleation was done and the abdomen closed without drainage. Uneventful recovery followed.

WILLIAM B. CAMPBELL, M.D.

Lenormant, C., and Hartmann-Keppel, G.: A Further Contribution to the Clinical Aspects and the Treatment of the Complications of Tubal Pregnancy (Nouvelle contribution à l'étude clinique et thérapeutique des accidents de la grossesse tubaire). *Gynéc. et obst.*, 1923, vii, 273.

The authors briefly review forty-eight recent cases of tubal pregnancy and discuss the principal anatomical types encountered, the treatment employed, and the results obtained.

Of forty-five of the case reports which mention the site of the pregnancy, twenty-six state that it was on the right side and sixteen that it was on the left. In three cases there was a rupture or a tubal abortion on one side and hæmatosalpinx on the other. In twenty-two cases the pregnancy was of the amullary variety in ten, isthmic in ten, and interstitial in two.

In twenty-one of thirty-three cases a tubal rupture occurred and in nine a tubal abortion; in one case there was a questionable ovarian pregnancy. There were eight cases of hæmatosalpinx, twenty-four with symptoms of intraperitoneal hæmorrhage, two with intraperitoneal hæmorrhage without diagnostic symptoms, four with partially encysted intraperitoneal hæmorrhage, and thirteen with encysted intraperitoneal hæmorrhage.

In the eight cases of hæmatosalpinx, two abdominal hysterectomies with conservation of normal adnexa and three unilateral salpingectomies were performed. In the twenty-four cases with symptoms of intraperitoneal hæmorrhage, twenty unilateral salpingectomies and two bilateral salpingectomies were done. Abdominal hysterectomy was done in four cases, in two on account of interstitial pregnancy, in one on account of a fibromatous uterus, and in one on account of an associated salpingitis on the opposite side. No drainage was used. In the four cases with partially encysted intraperitoneal hæmorrhage, two abdominal hysterectomies and two unilateral salpingectomies were performed. In eleven uninfected cases with encysted intraperitoneal hæmorrhage, five unilateral salpingectomies, one bilateral salpingectomy, four hysterectomies, and one posterior colpotomy and salpingectomy by the abdominal route were done. Of two infected cases one was subjected to abdominal hysterectomy with vaginal drainage, and the other to posterior colpotomy with abdominal packing.

No mention is made of microscopy for absolute verification of the diagnosis. A recognizable embryo or fetus was found in only eight cases.

In the total number of cases reported by the authors to date (eighty-four) the mortality was 10.7 per cent.

SALVATORE DI PALMA, M.D.

LABOR AND ITS COMPLICATIONS

Levant and Portes: Hæmorrhages in the Nerve Centers in Eclampsia (Hémorragies des centres nerveux au cours de l'éclampsie puerpérale). *Gynéc. et obst.*, 1923, vii, 332.

At the Baudelocque clinic eclampsia occurred in 183 of 55,488 obstetrical cases. There were five deaths from cerebral hæmorrhage, a mortality of 2.7 per cent. The authors' study is based on forty-one cases of hæmorrhage in eclampsia which have been reported in the literature and five unpublished cases which they report briefly with the autopsy findings. The hæmorrhage occurred in the meninges in twenty cases. In ten it was cerebro-meningeal; in eleven, purely cerebral; in three, peduncular; in one, bulbo-potuberal; and in one, diffuse.

Death may occur suddenly with marked cyanosis accompanied by hemiplegia or persistence of coma with thermal disturbances. If the patient survives the attack, which is rarely the case, sequels such as hemiplegia with or without fever may persist. Definite and complete hemiplegia means a cerebral hæmorrhage, and incomplete or transitory hemiplegia a meningeal condition. The pathology of the hæmorrhages is obscure. In certain cases syphilitic endarteritis seems to play an important rôle. No distinct or proved case of medullary hæmorrhage associated with eclampsia has been reported.

SALVATORE DI PALMA, M.D.

Grosse, A.: Syncope and Shock in Labor (De l'état syncopal et de l'état de choc chez les accouchées). *Rev. franç. de gynéc. et d'obst.*, 1923, xviii, 209.

Obstetrical shock is discussed on the basis of eleven cases in the author's practice in which delivery occurred without any serious genital injury or profuse hæmorrhage and there was no history of pathologic lesions in the lungs, heart, liver, or kidneys. Syncope and shock are closely related in these cases and no attempt is made to differentiate them.

Seven of the eleven cases discussed were those of primiparæ. Of the four multiparæ, three had had from seven to thirteen pregnancies. In four cases labor was long and tedious; forceps were employed eight times. In five cases chloroform was used, and in three cases the placenta was delivered artificially. None of the infants weighed less than 3 kilos; four weighed between $3\frac{1}{2}$ and 4 kilos, and five weighed 4 kilos or more.

Predisposing causes are a nervous temperament, previous conditions such as convalescence from an acute infectious disease, overwork and mental and

physical depression in the weeks previous to delivery, a difficult and long labor, infection of the sac, a difficult instrumental extraction, prolonged anesthesia, and precipitate delivery with forced dilatation of the cervix.

As a rule this complication has been noted shortly after the delivery of the placenta, but it may occur at any time during the labor or two or three hours afterward. The symptoms are of two types, the syncopal and the cardiac. In some cases the condition begins with a chill. This is ascribed to a placental origin or to the absorption of toxic products.

On the basis of the pathology the author distinguishes three types of postpartum shock: (1) nervous shock due to an inhibitory uterine reflex from sudden dilatation of the cervix and uterine tissues, (2) toxic shock due to the absorption of toxic cellular and bacterial material, and (3) complex shock due to several causes such as circulatory, cardiac, or hepatic conditions.

The treatment and prognosis depend on whether the shock is due to a uterine hæmorrhage, a rupture of the uterus, or cardiac collapse. As a rule the prognosis is good. The treatment is generally the usual measures employed to combat shock. In the eleven cases reported there was one death.

SALVATORE DI PALMA, M.D.

PUERPERIUM AND ITS COMPLICATIONS

Phillips, J.: The Puerperium. *Practitioner*, 1923, cx, 409.

It is generally assumed that the puerperium lasts for four weeks, but the patient should not consider herself normal for three months after confinement.

Many obstetricians order a douche after the introduction of the hand, but except for an occasional douche of hot water to promote contraction of the uterus after the third stage, douching is unnecessary in the normal case. In cases of offensive discharge with fever, washing out with a double-channel cannula is of very great importance.

Before the patient is allowed to get up a pelvic examination should be made to ascertain the size and position of the uterus. To restore the normal position, postural treatment and, when necessary, a Hodge pessary, are used.

The time-honored castor oil on the third day has been displaced by colocynth and hyoscyamus with belladonna and nuxvomica. After evacuation a general diet is given.

The author discusses only complications of unusual character. Among these are phlegmasia alba dolens, a bacterial infection; thrombosis, which is considered non-septic and is especially common and troublesome in the hæmorrhoidal veins; embolism from thrombosis to the right side of the heart and thence into the lung; nerve disturbances, such as lack of mental balance, acute mania, melancholia, and hysteria; and severe after-pains with no bearing on the management of the third stage; complete laceration of the perineum; hæmatoma of the vulva;

fibroids; ovarian tumors; retroversion; soreness of the nipples; and disorders of micturition. Among the rare complications in the author's cases were stone in the kidney, gall-stones, appendicitis, epidemic influenza, scarlet fever, measles, chicken pox, and typhoid.

Complete laceration of the perineum should be repaired at once. Hæmatoma of the vulva sometimes requires excision. Fibroids generally cause no symptoms but may degenerate or become strangulated. Ovarian tumors are usually removed during pregnancy. Soreness of the nipples during lactation is best relieved by the use of a lead nipple shield. An abscess requires early and free incision. Disorders of micturition are chiefly retention due to the trauma of prolonged labor.

The author formulates three main conclusions:

1. Streptococcus infection is preventable.
2. More attention should be paid to infection by bacillus coli.
3. The puerperium is almost pathological and continues so for at least four weeks.

WILLIAM B. CAMPBELL, M.D.

Fraenkel, E.: Gas-Bacillus Infection of the Uterus (Ueber Gasbrand der Gebärnutter). *Arch. f. path. Anat.*, 1923, ccxli, 352.

Physometra—which is not to be confused with tympanic uterus—is caused by the Fraenkel gas bacillus. Seven cases are reported in detail with a discussion of the manner in which the gas-bacillus infection in the smooth muscle of the uterus separates the individual muscle elements and causes thrombosis in the vessels.

The infection attacks only the gravid or puerperal uterus, almost always follows criminal abortion, and runs an unusually rapid course leading to death in a short time. Crepitation of the uterus can be elicited by palpation through the abdominal wall. The gas infiltration does not always affect the entire organ, as frequently it is localized. It is particularly prone to affect retained portions of the placenta. It may not involve the parametrium at all or may cause thrombosis within it. Its chief site is in the musculature; therefore it is of as great importance as the putrefactive and necrotic processes going on in the striated muscle. In animals, an additional exciting cause is the symptomatic anthrax bacillus of Kitt.

The article is concluded with certain clinical observations. In the nearly always fatal gangrene of the uterus caused by the gas bacillus there is a poisoning of the organism due to the absorption of toxic material from the tissue broken down by the gas bacillus, and usually, in addition, a bacteræmia. The anærobic gas bacillus does not itself produce toxins but has a destructive action upon the blood which is manifested clinically by a discoloration of the skin suggesting a mixture of icterus and cyanosis. The urine may contain the same products of blood destruction as the serum.

Removal of the diseased uterus does not greatly improve the prognosis, but Bruett was able to save

life by this operation in one case. Fraenkel strongly recommends the administration of Fraenkel serum.

BUDE (Z).

Eno, E.: A Study in Puerperal Morbidity. *Surg., Gynec & Obst.*, 1923, xxxvi, 797.

The author's study is based upon 7,000 case records covering a period of approximately fifteen years. Histories without a careful description of the delivery and a record of the puerperal temperature range were excluded. Of the 3,500 house cases, approximately 1,700 were those of primiparæ and 1,700 those of multiparæ. Of the out-practice cases, 700 were those of primiparæ and 2,800 those of multiparæ. The results of this study are summarized as follows:

1. The total morbidity was 8.6 per cent in the house cases and 2 per cent in the out-practice cases.
2. Morbidity was nearly twice as common in primiparæ as in multiparæ.
3. The total morbidity percentage has shown a steady decrease by five-year periods both in house and out-practice cases.
4. The total mortality from puerperal sepsis was 10 deaths in 10,000 cases.
5. The morbidity in non-operative cases was 5.5 per cent in cases delivered in the house and 1.6 per cent in out-practice cases.
6. There was a definite increase in the morbidity in the non-operative cases of primiparæ as compared with those of multiparæ, and the influence of long labor and repeated vaginal examinations can be traced.
7. There was either bacteriological or definite clinical evidence of gonorrhœa as an etiological factor of the puerperal infection in 36 per cent of the primiparæ and 20 per cent of the multiparæ.
8. In a large number of the patients, varying from 33 to practically 75 per cent of the total number, the course of the reaction was very mild and no definite etiological factor could be found.
9. The morbidity percentage has shown a steady drop by five-year periods in non-operative cases, in both house and out-practice cases.
10. The mortality rate was 2 in 2,886 house cases and none in the out-practice, non-operative cases.
11. The percentage morbidity in cases subjected to operative procedures was 22.9 per cent in the house cases and 8 per cent in the out-practice cases.
12. The incidence of postoperative morbidity was from two to four times as great in primiparæ as in multiparæ.
13. The drop in the incidence of postoperative morbidity has been less than that of the non-operative morbidity.
14. In their relation to morbidity the operative procedures show the following sequence: intra-uterine douche, version and extraction with craniotomy, manual removal of the placenta following some other procedure; the insertion of a bag followed by some other procedure; cæsarean section; version and extraction; high forceps; mid-forceps; breech

extraction; low forceps; manual removal of the placenta; the insertion of a bag. In the out-practice cases the sequence was practically the same.

15. The operative procedures which have been followed by death have been the more serious prolonged type. Multiple procedures have been common.

C. H. DAVIS, M.D.

PUERPERIUM AND ITS COMPLICATIONS

Phaneuf, L. E.: An Obstetrical Case Presenting an Unusual Group of Complications. *Boston M. & S. J.*, 1923, clxxxviii, 942.

Phaneuf's case was that of a woman 30 years of age who had been married nine years and had had two children and one miscarriage. The first child was born a year after marriage. Delivery was effected by medium forceps extraction after twenty-four hours of labor. The second delivery also was difficult and terminated by the use of medium forceps after seventeen hours of labor. The perineum was badly lacerated and poorly repaired. Subsequently there was a first-degree prolapse. Two years after the second delivery the prolapse was corrected by abdominal suspension. Following this, the patient had a miscarriage and was curetted. Just as she was recovering from the effects of the hæmorrhage she became pregnant for the fourth time.

The early part of this pregnancy was uneventful, but toward the seventh month she developed a frontal sinusitis, tracheitis, and swelling of the

ankles. The following month, January, 1922, albumin and casts appeared in the urine. A few days later the output of urine diminished, the œdema became more pronounced, and marked tenderness developed in the left groin. Examination on February 7 revealed fixation of the uterus to the anterior abdominal wall and extreme thinning of the posterior uterine wall. A large child presented by the left shoulder in right position. The cervix had been pulled up to the promontory of the sacrum and the child's abdomen was resting against it. The hæmoglobin was 30 per cent and the red count 1,225,000. There was thrombosis of the saphenous and iliac veins with œdema of the extremities. The patient had also a nasopharyngitis, tracheitis, and bronchitis with cough. The urine at this time showed albumin, casts, and blood.

The distortion of the uterus made pelvic delivery impossible, the anæmia rendered abdominal delivery dangerous, and the respiratory infection contra-indicated general anæsthesia. To overcome these difficulties it was decided to give a transfusion and to do a cervical cæsarean section under spinal anæsthesia. Four hundred cubic centimeters of whole blood were transfused. When the abdomen was opened it was found that the entire lower uterine segment was walled off by adhesions. The child, a male weighing 9 lbs., 14 oz., was delivered through an incision in the cervix. The patient completely recovered after a stormy convalescence.

HARRY W. FINK, M.D.

GENITO-URINARY SURGERY

ADRENAL, KIDNEY, AND URETER

Jaffe, H. L., and Marine, D.: The Influence of the Suprarenal Cortex on the Gonads of Rabbits. I. The Effects of Suprarenal Injury (by Removal or Freezing) on the Interstitial Cells of the Ovary. *J. Exper. Med.*, 1923, xxxviii, 93.

Jaffe, H. L., and Marine, D.: The Influence of the Suprarenal Cortex on the Gonads of Rabbits. II. The Effects of Suprarenal Injury (by Removal or Freezing) on the Tubules and Interstitial Cells (Leydig) of the Testis. *J. Exper. Med.*, 1923, xxxviii, 107.

It is well known that hypertrophic changes occur in the interstitial cells of the ovary and the suprarenal cortex in certain animals during pregnancy. Removal of the gonads also causes hypertrophy of the suprarenal cortex. In the authors' experiments moderate or marked ovarian enlargement was observed in 76 per cent of rabbits which survived double suprarenalectomy for more than thirty days. Hypertrophy of the interstitial cells is additional evidence regarding the functional interrelation between the suprarenal cortex and the interstitial cells.

Double or partial suprarenalectomy in rabbits produced no specific changes in either the tubules or the interstitial cells of the testes. This fact indicates that the interstitial cells of the testis and the ovary are not functionally homologous.

THOMAS F. FINEGAN, M.D.

Ballance, H. A.: A Cyst of the Right Suprarenal Capsule Removed by Operation. *Brit. M. J.*, 1923, i, 926.

During the examination of the abdominal contents preceding a gastrojejunostomy for an old encircling ulcer of the first part of the duodenum, a large cystic tumor of the right hypochondrium was found. This was attached only slightly to the kidney. The kidney was displaced downward, and the liver to the left and downward. The removal of the cyst was not deemed advisable following the gastrojejunostomy. The patient made a satisfactory recovery.

Three months later there were definite indications of a tumor in the right side extending down from under the right costal margin.

With the patient on the left side an incision was made below the twelfth rib. A cyst measuring approximately 6 by 9 in. was exposed. This was tapped and then peeled from its firm attachment to the peritoneum and the tissue in the neighborhood of the vertebral column. It was only slightly attached to the kidney. Temporary drainage was established.

The cyst contained 2½ pts. of a thin, amber-colored, odorless, turbid fluid which was neutral in

reaction and became solid when it was boiled. The thickness of the walls of the cyst ranged from ⅓ in. to that of writing paper. The outer surface of the cyst was smooth except for adhesions and irregularly distributed yellow nodules varying in size from ¼ to ⅓ in. The inner surface of the cyst was rough and yellowish pink, and in certain areas was covered with a white sebaceous material. The fluid showed weakly the presence of adrenalin. Section through the yellow nodules revealed adrenal cortical cells.

The method of origin of the cyst is uncertain. Hemorrhages into cysts are frequent and account for the reddish-brown contents usually found. Cysts of the suprarenal occur in the lower animals.

The symptoms may be only a sense of fullness in the side or slight dyspeptic symptoms without pain, but if hemorrhage takes place, pain may be severe and the patient may become seriously ill.

The diagnosis is difficult until the tumor can be palpated. Then, mobility from side to side is greater than that from above down. A cyst on the right side pushes the kidney down and the liver to the left and down. A cyst on the left side displaces the spleen and the tail of the pancreas to the right. A right lobe hydatid cyst may be difficult to differentiate until it suppurates. A hydatid cyst of the spleen is more mobile and a pancreatic cyst is usually more centrally placed.

Complete removal of the cyst is indicated. This is most easily done through a lumbar incision below the twelfth rib. The opening may be enlarged, if necessary, by extending the incision or resecting the twelfth rib, and drainage is easily established.

Doran, in 1908, gave references to cases recorded in the literature up to that date, and this article adds the cases reported since then.

MANFORD R. WALTZ, M.D.

Cabred, R. G.: Suprarenal Tumors—Suprarenomata (Los suprarenomas). *Semana méd.*, 1923, xxx, 747.

Attention was first called to the suprarenal origin of certain kidney tumors by Grawitz in 1883. Cabred discusses the various phases through which the classification of such tumors has passed and reaches the conclusion that the pathogenesis described by Grawitz is correct. Tumors derived from the suprarenal tissue have characteristics which warrant their classification in a distinct group, viz., suprarenomata.

A large number of tumors reported in the literature as tumors of renal origin are suprarenomata. These include the neoplasms called epitheliomata with clear cells, adenomata with clear cells, and the majority of endotheliomata.

W. A. BRENNAN.

Guyot, J., and Jeanneney, G.: A Physiopathologic Study of a Kidney with a Double Ureter (*Étude physio-pathologique d'un rein à uretère double*). *J. d'urolog. méd. et chir.*, 1923, xv, 81.

Embryologically the kidney is formed from two pouches, one of mesoderm which forms the parenchyma and vessels and the other of endoderm which forms the urinary excretory system. The second pouch comes from the allantois near the wolffian body, penetrates into the embryo kidney, and divides to form the pelvis, calyces, and tubules. If this division occurs too early, a Y-shaped ureter results. If it occurs before the origin of the pouch, a double ureter is formed. As the vessels of the kidney are arranged according to the excretory canals and are terminal, each excreting lobe of an abnormal kidney or a kidney with supplementary ureters is independent of its neighbor.

Hence in a double kidney only certain parts may be diseased and conservative surgery such as partial nephrectomy may be sufficient. A case of this kind is reported in detail. Attention is called to the functional differences in the parts of such a kidney. When the ureter is of the Y type two ureteral openings may not be shown in the bladder.

KELLOGG SPEED, M.D.

Quinby, W. C.: Hydronephrosis. *J. Urol.*, 1923, x, 45.

Hydronephrosis associated with an anomalous artery crossing the ureteropelvic juncture is not very infrequent and shows a definite symptomatology.

The renal artery may be partially doubled (early branching) or entirely doubled throughout its course, or the vascular supply may enter the kidney or at the hilus at either one or both poles, with or without a vessel at the normal hilus. With a polar vascular supply, the artery supplying the lower renal pole is frequently found close to the ureteropelvic juncture, running anteriorly or posteriorly to the pelvis or, in the presence of two vessels, entering the lower pole on each side of the renal pelvis. These anomalous vessels may spring from the aorta or from the spermatic, ovarian, or iliac arteries.

Aside from infection, the outstanding feature is the dilatation of the renal pelvis, which varies in capacity from 200 c.cm. to a liter. The pelvic wall undergoes hypertrophy. The ureteropelvic juncture shows neither stricture nor valve formation, and the ureteral opening is nearly normal in position. At the ureteropelvic juncture these structures are in intimate relation to the aberrant vessels, and there may be one or two associated aberrant veins, the whole making a definite band-like structure. The artery may be very small or carry at least half of the total blood supply. The plexus of vasomotor nerves is not associated with the anomalous vessel to the lower pole unless there is no vessel entering the hilus, when it is seen along the course of both upper and lower polar arteries. The renal parenchyma is thinned in proportion to the extent of the hydronephrotic process and shows bosses over the dilated

calyces within. The tubules are thinned and flattened, corresponding to a reduction of the renal function. The unaffected part of the ureter is normal.

The pain localized in the kidney region occurs in attacks varying in frequency and increasing in severity. It does not radiate much except at the height of an attack, when it may be referred along the course of the ureter. In acute attacks, nausea and vomiting are common. The acute attack comes on rather suddenly, reaches its maximum within a few hours, and then subsides, leaving a heavy aching sensation which persists for several days. During the intervals there may be a heavy dragging feeling, and certain movements and positions of the body are painful.

With the great pelvic distention there may be a palpable tumor during the acute attacks, which subsides with the pain. As a rule, however, neither kidney is palpable. During the attacks complaint is made of localized pain and tenderness. Urination may be normal or during the attacks there may be frequency. The combined renal function is usually quite normal, and urinalysis reveals only a very slight trace of albumin and few blood cells. A normal temperature and leucocyte count are characteristic, but slight transient pyrexia may occur. The general condition is usually excellent. Cystoscopic examination reveals nothing abnormal. In one kidney there is a definite interference with function. The hydronephrotic side shows a continuous rather than an intermittent flow of urine, and pyelography reveals distention of the pelvis and calyces.

The treatment is surgical and of three types: (1) nephrectomy, which is reserved for kidneys with loss of function; (2) ligation and section of the aberrant vessel, which is justified only when the enlargement is slight and the other vessels are adequate; and (3) plastic operations on the dilated pelvis at the ureteropelvic juncture. The ideal operation on a well-functioning kidney is elimination of the intimate relation between the aberrant artery and the excretory passages, as by free section of the ureter followed by its re-implantation into the most advantageous portion of the pelvis away from the vessel.

LOUIS NEUWELT, M.D.

Magoun, J. A. H., Jr., and MacCarty, W. C.: Malignant Neoplasia of the Kidney Occurring in Infancy. *Surg., Gynec. & Obst.*, 1923, xxxvi, 781.

There is much confusion concerning the histogenesis of the mixed tumors of the kidney found in children. The study reported in this article was made on seven renal tumors removed from seven children, the eldest of whom was 7 years of age and the youngest 20 months. The tumors were found to be composed of one type of cell in various stages of differentiation and with varying amounts of connective tissue reaction. The authors classified them as carcinomata of the adenomatous type.

Such tumors are of varying degrees of malignancy. They have both undifferentiated and partially

differentiated tissues of apparently the same type of cell, and whenever there are undifferentiated cells the prognosis is unfavorable.

Three of the seven children died within a year after the operation; two are alive, but not well, one year later; one is perfectly well eighteen months after the operation; and one cannot be traced.

Delore, X., and Dunet, C.: A Perinephritic Abscess Appearing First on the Left and, After an Interval of a Year, on the Right Side (Phlegmon périnéphritique apparu successivement à droite et à gauche à un an d'intervalle). *J. d'uroł. méd. et chir.*, 1923, xv, 195.

Perinephritic abscess following general infection or staphylococcus bacillæmia is usually unilateral. In fifty-two cases reported in 1922 there was no case of bilateral localization. In the few known instances of bilateral involvement both kidneys were affected almost simultaneously or the second was involved only a few days after the first. In the case reported in this article the interval between the involvement of the two sides was more than a year, and both attacks followed a staphylococcus infection. The patient was a woman 54 years old who, in November, 1920, had a furuncle on the left temple and on the dorsal surface of the left middle finger. In April, 1921, while apparently in good health, she suddenly experienced pain in the left lumbar region. There was no fever or urinary disturbance. In July, 1921, she entered the hospital because of a swelling in the lumbar region. At operation, July 5, a large quantity of pus was evacuated. The kidney appeared intact. The patient was discharged from the hospital July 23.

On August 28, 1922, she returned with similar symptoms on the right side. Incision emptied about a liter of pus. Cultures showed pure staphylococcus aureus. The patient stated that about two months before the second perirenal abscess she had had two furuncles on her neck for about two weeks.

KELLOGG SPEED, M.D.

Giuliani, A.: Double Ureter, Tuberculous Kidney, Nephrectomy (Uretère double, rein tuberculeux, néphrectomie). *J. d'uroł. méd. et chir.*, 1923, xv, 197.

The patient, a 58-year-old woman, had all the cardinal signs and symptoms of renal tuberculosis. On cystoscopic examination two ureteral openings were found on the left side. The urine from one contained a large quantity of pus, while that from the other was clear. Total nephrectomy was performed.

The kidney was found to be divided into two parts, one of which was surrounded by perirenal thickening and adhesions. After removal the mass had the appearance of two kidneys united by an isthmus. The tuberculosis was limited to the lower portion. There were two ureters and two pelves. The operator regretted that he did not limit the operation to partial nephrectomy.

KELLOGG SPEED, M.D.

BLADDER, URETHRA, AND PENIS

Oliva, C.: Bladder Hernia in Infancy (L'ernia della vescica nell'infanzia). *Arch. ital. di chir.*, 1923, vi, 533.

In the literature, Oliva has been able to find only sixteen cases of bladder hernia in young children. These he reviews briefly. In this article he reports a case of his own and one unpublished case seen by Maragliano. All of the sixteen patients were under 12 years of age.

The following conclusions are drawn:

1. Bladder hernia in children is very rare. Its frequency is 0.46 per cent while that of cystocele in adults varies from 1 to 2 per cent.

2. It is most common in the inguinal region (89 per cent of the cases) and next most common in the femoral region (11 per cent of the cases). It occurs more frequently in males (94.5 per cent) than in females, and on the right side (89 per cent) than on the left.

3. It may be paraperitoneal or, less commonly, extraperitoneal. No case in which it was intraperitoneal has been observed.

4. It may result from (1) congenital factors, such as weakness or thinning of the hernial ring or abnormality in the form or position of the bladder, or (2) acquired factors, such as inflammatory processes, adhesions between the bladder and a hernial sac, or prevesical lipomata, which cause fixation and traction.

5. The symptoms are very vague.

6. The diagnosis of cystocele in young children has never been made before operation.

7. The operative findings which should suggest the condition are: (1) a prevesical lipoma; (2) a grayish-red color of the suspected body which on palpation gives the sensation of two surfaces sliding upon each other; (3) the direction of the pedicle toward the median line and toward the pubes; (4) the presence, in cases of diverticulum, of a collar or an isthmus at the hernial ring; (5) the possibility of palpating in the midst of the organ the point of a catheter introduced through the urethra, or an increase in volume of this body on the introduction of fluid into the bladder; and (6) the occurrence of vermicular contractions.

8. The complications of cystocele in infancy are strangulation and calculus.

9. The prognosis is good.

10. The treatment is resection of the hernial sac, if any exists, and of the prevesical lipoma, followed by reduction of the herniated bladder. A true vesical diverticulum must be extirpated.

If in the course of radical treatment of hernia in a child, a thickening of the sac or a lipoma is found, a hernia of the bladder should be considered.

The author's case and that of Maragliano are the only cases of femoral hernia of the bladder in young children so far reported. All others were cases of inguinal hernia. The author's case is the only reported case of bladder hernia in a female.

W. A. BRENNAN.

Joly, J. S.: The Operative Treatment of Vesical Diverticula. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Urol., 55.

Excision of the sac is the only rational treatment of vesical diverticulum. No single operation is suitable for all cases.

Excision from without the bladder may be transperitoneal or extraperitoneal and is best suited for diverticula situated high up on the lateral walls and those occurring at the urachus.

Splitting of the bladder wall down to the orifice of the diverticulum is indicated when the diverticulum is situated low down on the posterior wall of the bladder, when the walls of the bladder or diverticulum are thick and inelastic, and when there is marked pericystitis.

Intravesical operations are dangerous.

Invagination of the sac should be performed partly from within and partly from without the bladder. Combined invagination and inversion of the sac is a definite advance on the usual invagination method.

If prostatic or urethral obstruction is a complicating feature, both conditions should be treated at the same time. If this is not feasible, the diverticulum should be removed first and the obstruction treated later. A preliminary cystotomy usually does more harm than good.

The presence of a calculus in the bladder or the sac is an indication for excision of the diverticulum.

Usually the ureter lies in close relationship with the neck of the sac and must be guarded against injury during the operation.

The contents of a diverticulum cannot always be evacuated by catheterization. The urine left behind after catheterization, called "concealed residual," is often considerable in amount. The presence of concealed residual urine vitiates all renal functional tests carried out on the bladder urine. Therefore it is necessary to catheterize the ureter or to estimate the blood urea.

The presence of a diverticulum is best diagnosed by cystoscopic examination, and the size and position of the diverticulum are best determined by means of cystograms.

LOUIS NEUWELT, M.D.

Chocholka, E. F.: Syphilis of the Urinary Bladder (Syphilis der Harnblase). *Časop. lékař. česk.*, 1922, lxi, 825, 855, 884, 903.

In 600 cases the author examined cystoscopically he found fourteen cases of syphilis of the bladder. To these he adds nine cases of a series of 105 examined cystoscopically in the Czech dermatological clinic in Prague. In all of the twenty-three cases the Wassermann reaction was positive and anti-syphilis treatment gave quick results.

The signs of syphilis revealed by the cystoscope included hyperæmia of the bladder, cystitis, papules, ulcers, spherical tumors (gummata), and similar lesions. In nine cases the mucosa had a most peculiar appearance, being sprinkled with miliary and larger nodules of the same color as their surroundings. This picture resembled that of shagreen.

Another form of syphilis of the bladder not previously described was the formation of a moss-like, mulberry-shaped overgrowth of the mucosa resembling that noted in bilharziasis of the bladder (two cases). Tertiary formations (gummata) were seen in five cases and ulcers in seven. In two cases the ulcers had caused the formation of bladder fistulæ, one of which led into the intestine. In one case a pulsating tumor was found, apparently an aneurism of a vesical artery due to syphilis.

Of 600 cases examined cystoscopically since 1911, all showed considerable trabecular hypertrophy and a distinct reaction to anti-syphilis treatment. In thirteen there were parasyphilitic changes in the bladder and in seven the vesical tonus was increased. Nine showed a positive Wassermann reaction and three a positive Bellost reaction. In five there was a history suggesting syphilis. The thirteen cases of parasyphilitic conditions included two cases of tabes incipiens, five of tabes dorsalis, one of pseudotabes, and five of progressive paralysis. The trabecular hypertrophy in these cases cannot be ascribed to purely mechanical factors as it was associated chiefly with specific trophoneurotic disturbances.

KINDL (Z).

Rochet and Thévenot: A Case of Total Cystectomy in a Woman with Carcinoma of the Bladder (Un cas de cystectomie totale chez une femme atteinte de cancer de la vessie). *J. d'uroł. méd. et chir.*, 1923, xv, 210..

The patient, a 58-year-old woman, was operated upon in 1912 for a tumor of the hepatic flexure of the colon. The growth proved to be an epithelioma. No intestinal disturbance followed the operation. Two years ago, frequency of urination began and in six months was followed by hæmaturia. Beginning in April, 1922, the urinary frequency and hæmaturia with casts became very troublesome. Examination of the kidneys was negative. The cystoscope revealed a normal right ureteral orifice; the left orifice was masked by vegetations. As operation was refused, radiotherapy was given for eight hours. Subsequently pieces of tumor tissue were voided, but there was no relief from frequency, hæmaturia, or pyuria. A cystoscopic examination in July showed the tumor spreading in the fundus of the bladder.

On November 14 the bladder was exposed and liberated without doing a hysterectomy. The ureters were severed a fingerbreadth from the neck of the bladder and the peritoneal bladder covering firmly applied on the front of the uterus. The left ureter was implanted in the abdominal wound and drained by a ureteral catheter. The right ureter, which was lost in the neoplastic mass, could not be freed and was left at the bottom of the wound. The wound was drained. At the present time only a small fistulous opening remains and from this the urine drains into a receptacle. The case is remarkable as the patient had had a carcinoma in two different areas in the course of twelve years.

In the operation performed by the authors for total removal of the bladder the anterior and posterior surfaces of the bladder are dissected free by opening the peritoneum. The two pedicles of the lateral ligaments, which are left, are cut between forceps, the urethra is cut off about 1 cm. from the bladder neck, and the two ureters are sectioned so that the base of the bladder can be stripped out. Hysterectomy may be done at the same time. The ureters may be transplanted into the bowel, but there is less danger of infection when they are implanted in the operative wound.

KELLOGG SPEED, M.D.

GENITAL ORGANS

Kornitzer, E., and Zanger, C.: Myomatous and Adenomyomatous Hypertrophy of the Prostate (Ueber myomatoese und adenomyomatoese Prostatahypertrophie). *Ztschr. f. urol. Chir.*, 1923, xi, 137.

The authors have found the literature wanting in precise information regarding the topography, histogenesis, and pathogenesis of the purely or preponderantly fibromyomatous form of hypertrophy of the prostate although very exhaustive work has been done on the adenomyomatous form, particularly by Tandler and Zuckerkandl. Therefore they here present in some detail a number of the cases of fibromyomatous prostatic hypertrophy affecting the middle lobe which were observed on Zuckerkandl's service. Clinically these cases presented severe symptoms of advanced prostatic hypertrophy with complete or incomplete retention of urine, but on rectal examination the gland was found to be only slightly enlarged though hard, and nodular. Suprapubic enucleation was very difficult in every instance; in some areas it could be done only with the knife and usually not *in toto*.

Examination of serial sections in six cases revealed a preponderance of smooth muscle and connective tissue over the glandular portions; both were arranged in strands and broader bands and frequently also in circumscribed nodules. The connective tissue was often similar to that in a richly cellular fibroma, being young, rich in nuclei, and with large, clear spindle cells and large, light nuclei. The glandular substance was divided into larger and smaller lobes by wide septa which consisted almost exclusively of smooth muscle and showed two varieties of epithelium, viz., large, darkly staining, finely granular cells with large, dark nuclei and disintegrating epithelium in many forms.

Corpora amylacea or their preliminary stages, granular and flakey concretions, were found deposited in greatly dilated gland ducts lined with quite flat epithelium or free in the smooth musculature. Elastic fibers were found more closely deposited in the lower parts of the submucosa. The circumscribed fibromuscular nodules contained no elastic tissue. Collections of lymphocytes and signs of localized inflammation were numerous and sometimes in the form of small abscesses. The larger

bands of smooth muscle showed no signs of inflammation; therefore they could not be attributed to inflammatory processes. Under certain circumstances, however, these might explain the origin of new connective-tissue cells.

As regards the genesis of this form of prostatic hypertrophy the authors agree with Virchow and Klebs that it begins as the glandular form and becomes gradually associated with an increase in the stroma.

PFLAUMER (Z).

Stevens, A. R.: The Differentiation Between Tuberculous and Non-Tuberculous Inflammation of the Epididymis. *J. Urol.*, 1923, x, 85.

The author discusses only cases of epididymitis in which the diagnosis was confirmed by microscopic examination after operation. In a series of 114 such cases the condition was tuberculosis in seventy-four, simple inflammation in thirty-five, and syphilis in four.

All of the patients with tuberculosis or simple inflammation of the epididymis complained of swelling or pain. Seven of the former and four of the latter had urinary symptoms. In 25 per cent of those with tuberculosis and 11 per cent of those with simple inflammation the condition was bilateral. Over 12 per cent of the former had had a previous operation, but none of the latter had been operated upon before. Thirty-eight per cent of the tuberculous and 6 per cent of the non-tuberculous had a discharging sinus. The patient's age was apparently of little importance. A history of trauma was given in 10 per cent of both groups of cases. Neisserian infection was not an apparent factor. Tuberculosis elsewhere was found in thirty-two cases in the tuberculous group and in only one case of simple inflammation.

The duration of symptoms was less than two weeks in 20 per cent of the cases of tuberculosis and 37 per cent of the cases of simple inflammation; less than one month in 25 per cent of the former and 48 per cent of the latter; and between one and three months in 20 per cent of the former and 11 per cent of the latter. Beyond three months, the percentages were nearly identical.

For one month the involvement of the prostate and seminal vesicles was about the same in both groups, but after that time the tuberculous group showed more marked extension while the simple type improved. The involvement of the vas was about the same in both groups and not of much aid in the diagnosis. A beaded vas was found in seven tuberculous and three non-tuberculous patients.

The four patients with syphilis gave histories of painless, increasing enlargement of the testicles of from five to twelve months' duration. Rectal examination was negative. Three had a positive Wassermann reaction.

The following points are brought out in the conclusions:

1. Double epididymitis slightly favors tuberculosis.

2. A previous operation almost invariably means tuberculosis.

3. A sinus persisting longer than a month is probably tuberculous.

4. In over 90 per cent of cases tuberculosis elsewhere means genital tuberculosis.

5. When the condition has been present longer than a month a rectal examination is of some aid in the diagnosis. After six months the condition of the prostate and vesicles is of great importance in the diagnosis, for the longer the duration of the condition the greater is their involvement.

6. A simple inflammatory lesion may last as long as a tuberculous lesion. C. D. PICKRELL, M.D.

Soederlund, G.: The Surgical Treatment of Tuberculosis of the Epididymis (Beitrag zur Frage ueber die chirurgische Behandlung der Nebenhoden-Tuberkulose). *Acta chirurg. Scand.*, 1923, lv, 513.

The point of origin of the tuberculous process is of great importance with regard to the method of operation. When the patient is first examined the testicle, vas deferens, seminal vesicles, and prostate are usually affected and which of these was first involved is difficult to determine.

Some surgeons believe the infection spreads upward from the epididymis and therefore remove the testicle with the epididymis. Others contend that it originates in the prostate and spreads downward, and therefore remove also the prostate, seminal vesicles, and vas. This extreme method, however, has never gained ground because simple castration gives satisfactory results. In the author's opinion the epididymis is the primary site of the disease and the removal of the prostate and vesicle is unnecessary.

Two schools of operation have developed, the radical, which was sponsored in Germany and followed in Sweden, and the conservative (simple epididymectomy) which has been followed in America and France. Even the conservative operator, however, removes the testicle when at operation it is found diseased on macroscopic examination. From the clinical aspects of tuberculosis of the epididymis it appears that epididymectomy is indicated rather than castration, since the disease seems to be confined to the epididymis. The Germans castrate on the assumption that the testicle is always found involved on microscopic examination, but experience has shown that if it is only microscopically affected, it recovers after the removal of the epididymis as does the bladder after nephrectomy. Recently German surgeons seem to incline more and more toward the American-French method of simple epididymectomy. Castration means mutilation, even though in many cases of bilateral castration the libido, sexual power, vigor, and vitality remain unchanged. The author tabulates the castrations and epididymectomies performed in his hospital in two tables and gives the case histories.

In the General and Sahlgren Hospitals in Göteborg, Sweden, fifty-two cases of tuberculous epididymitis were operated upon in the period from 1914

to 1920. There were thirty-seven castrations, twenty-four epididymectomies, and nine combined operations. The first three years after the operation are the critical ones, and for practical purposes a cure at the end of this term may be regarded as permanent.

Following the twenty-four epididymectomies on twenty-three patients there was only one recurrence, but there is no reason to believe that the method of operation, castration or epididymectomy, causes any difference one way or the other in the number of recurrences or the mortality rate. There were three deaths, all of which occurred within three years. The immediate mortality of these operations is practically nil and the risk of leaving the testicle is extremely slight. In most cases it is later found healed, a fact suggesting that it is especially resistant to tuberculosis. After castration, healing is perhaps a little smoother and fistulæ occur slightly less frequently, but the length of the hospital stay is alike and if castration is avoided the internal secretion of the testicle is conserved to make up for these small drawbacks.

The author summarizes his conclusions as follows:

In a large number of cases of tuberculous epididymitis simple epididymectomy gives fully as good results as castration. The mortality, recurrence, and length of hospital stay are equal. Consequently epididymectomy should be preferred because it saves the testicle.

In old men castration is indicated because the loss of the testicle is of minor importance. In young men the testicle should be spared if on palpation during operation it is found to be of normal size and consistency, but castration should be done if the surrounding soft parts are tuberculous and fistulous and the testicle on the other side is normal.

The patient's wishes should also be taken into consideration. He may prefer a radical operation with the loss of one testicle and a short hospital stay to removal of the epididymis alone and longer hospitalization.

In double tuberculous epididymitis in which one side is severely affected and the other only slightly involved the former should be operated upon radically, and on the better side the epididymis should be removed. If both sides are severely affected and the testicles appear sound, bilateral epididymectomy should be done and the testicles spared.

When one testicle has been removed in a previous operation for tuberculous epididymitis the other should be spared if possible, either entirely or in part. If there is doubt as to whether a radical or conservative operation should be done the patient's general health should decide. Castration should be done if there are signs of tuberculosis in other parts of the body.

Fistulæ or abscesses alone are no indication for castration provided the node found in the epididymis is circumscribed and the rest of the epididymis appears normal or the entire epididymis is enlarged and covers the testicle like a lumpy cap. In such

cases a quick cure with conservation of the normal testicle can be expected. Epididymectomy does not appear to cause atrophy of the testicle.

As a rule tuberculous epididymitis can be easily differentiated from acute epididymitis, lues, and tumor, but its differentiation from chronic, non-specific epididymitis is difficult. Especially staphylococci, descending from the bladder along the urethra, cause a chronic epididymitis that should be excluded before operation by a careful bacteriological examination of the urine. Of sixty-five cases of chronic epididymitis operated upon as tuberculous, fifty-two were found to be tuberculous, six non-tuberculous, and seven doubtful.

In uncomplicated epididymitis the technique of operation is easy, but if surrounding induration and abscesses are present it is difficult to remove the diseased tissue without impairing the blood supply of the testicle.

The skin incision is placed either in the scrotum or the inguinal region, the latter in the author's cases. The externus aponeurosis is split as far as necessary. To assure prompt healing after epididymectomy it is very important to stop all bleeding carefully and close the wound without drainage.

A. C. MULLER, M.D.

MISCELLANEOUS

Rosenow, E. C., and Meisser, J. G.: The Production of Urinary Calculi by the Devitalization and Infection of Teeth in Dogs with Streptococci from Cases of Nephrolithiasis. *Arch. Int. Med.*, 1923, xxxi, 807.

Infection is regarded as a common cause of calcification in tissues, but the hypothesis that certain micro-organisms which infect man may have peculiar power in this respect is not generally believed.

During the preparation of immune sera, in which repeated injections of dead streptococci having different localizing powers were made, concretions were found at necropsy in the calices and substance of the kidneys of sheep injected with a pyelonephritis strain. In a series of experiments in which nephritis followed the devitalization and infection of teeth in dogs with a staphylococcus from a case of nephritis, one dog developed pyelitis and cystitis with marked calcareous deposits in the adherent exudate in the pelvis of the kidney and in the bladder. On the basis of these observations it was believed worth while to attempt to produce urinary calculi in dogs by creating foci of infection around the teeth with organisms isolated from the urine and foci of infection of persons with nephrolithiasis, thus simulating the conditions so often present in clinical cases.

The dogs selected were active and well nourished. They were kept under hygienic conditions and fed a balanced ration of dog biscuit supplemented occasionally by meat. A supply of water rich in lime salts was constantly before them. At the beginning of the experiment catheterized specimens of the

urine were normal and roentgenograms of the kidneys, ureters, and bladder were negative. Cultures from the catheterized urine of the patients and from foci of infection in tonsils and teeth were made on blood-agar and in glucose brain broth. The teeth of the dogs were infected either with the primary culture obtained directly from the focus of infection or the urine of the patient, or with the culture from renal lesions in rabbits which had been injected intravenously with the primary culture. From two to four cusps were devitalized and infected. Catheterized specimens of urine were examined at intervals. At the end of from fifty-one to one hundred and twenty days after the infection of the teeth one kidney was removed from each dog, this affording the opportunity at necropsy some time later to compare the findings in that kidney with those of the opposite kidney.

Nine cases of nephrolithiasis were studied. The ages of the patients ranged from 33 to 60 years. The details of only one of the nine cases are given. This patient had had repeated attacks of renal colic for four years, and in this case four series of experiments were performed on dogs. The dogs in three series were inoculated with cultures isolated from the patient's urine and those in one series with cultures from an infected tooth.

In the first series, the teeth of two dogs were devitalized and infected with the primary culture from the urine. Both dogs developed calculi.

In the second series, the teeth of four dogs were infected with the primary culture from the urine, and the teeth of four others with arthritis strains. Four other dogs were placed under the same conditions without devitalization or infection of the teeth. Calculi were found in the kidneys of three of the four dogs whose teeth were infected with the culture from the urine. The fourth dog died of distemper eleven days after infection of the teeth, too soon for stones to form. The kidneys in the eight control dogs remained normal.

In the third series, ten dogs were used. The teeth of four of these were infected with the primary culture of the streptococcus from the urine of the patient during a quiescent interval, and six dogs whose teeth were devitalized but not infected with a nephrolithiasis strain were used as controls. The kidneys of three of the dogs in the first group contained small calculi; the fourth dog in this group and the six control dogs were free from calculi and other lesions.

In the fourth series, the teeth of two dogs were inoculated with the streptococcus from one of the patient's teeth, and the teeth of two control dogs with the streptococcus from the tonsils of a patient with vague urinary symptoms. The first two developed calculi in the kidneys; the control dogs were free from calculi and other lesions.

Calculi or lesions of the kidney were produced in 87 per cent of the dogs whose teeth were infected with streptococci from the urine, infected teeth, and tonsils of nine patients with typical nephro-

lithiasis. The duration of the experiments yielding positive results was from one to ten months. The duration of the experiments on the dogs in which the findings were negative was too short for stones to form. This is in sharp contrast to the findings in an equal number of dogs whose teeth were infected with strains from other sources and in those of a larger series kept under the same conditions but whose teeth were not infected.

Painstaking search was made for the organism in the lesions in the kidneys and in, or adjacent to, areas in which sections revealed beginning stone formation.

The experimentally produced calculi were similar in physical properties and chemical composition to those found in nephrolithiasis in man. The number and size of the stones were often proportional to the duration of the experiment. Roentgenograms often revealed the larger stones. The other findings in the urinary tract were also similar to those occurring in patients with this disease.

The streptococcus inoculated into the teeth of the dogs was isolated from the kidneys, from some of the stones, and from the teeth at the end of the experiment, and its elective affinity for the urinary tract in rabbits was demonstrated on intravenous injection.

Roedelius, E.: The Idiopathic Urine Reaction of Wildbolz (Ueber die Eigenharnreaktion nach Wildbolz). *Ztschr. f. urol. Chir.*, 1922, x, 77.

Wildbolz demonstrates the tuberculous toxins in serum or the secretions of the body by means of an allergy reaction in intracutaneous tests. Unfortunately there are certain sources of error bound up with this reaction which can be avoided only by the most careful technique in experienced hands. Attention must be paid particularly to the condition of the kidney function, as in advanced renal tuberculosis the idiopathic urine reaction becomes negative because of the impairment of the secretory power of the diseased kidney.

Whether the idiopathic urine reaction will reveal differences of intensity in the disease, has not been demonstrated with certainty; at the present time it is of no use as an indication of the prognosis. The antigen content of the urine is not appreciably raised by the presence of excitants.

The author classifies the specific urine reactions into four groups:

1. The reaction in pronounced, active tuberculosis (except far advanced tuberculosis of the kidney).

2. A positive reaction as an accidental finding in other diseases and in normal persons. Frequently the idiopathic urine reaction is of great value in the differential diagnosis.

3. The positive reaction in non-tuberculous and otherwise healthy persons. Such cases are relatively rare.

Roedelius connects the development of the positive reaction with the fact that at the appearance of the antibodies and antigens, i.e., at the beginning of

the struggle between the infection and the body, no pathologico-anatomical changes are to be found. It makes a difference whether the problem is regarded as pathologico-anatomical or immuno-biological.

It has been found that a number of other diseases may give a positive idiopathic urinary reaction. To this group belong tertiary syphilis, typhoid, and paratyphoid. Therefore the reaction is not absolutely specific for tuberculosis and the method must be further tested before its value can be accurately stated. It is a complicated procedure most suitable for large clinics. The specific reaction of the blood is recommended, as in this it is possible to eliminate a number of sources of error. SCHEEL (Z).

Hartman, G. W.: The Diagnosis and Cure of Gonorrhœa. *California State J. Med.*, 1923, xxi, 393.

Hartman's criteria of the cure of gonorrhœa are as follows:

1. Absence of all urethral discharge.

2. Urines 1, 2, and 3 free from shreds or containing only shreds free from pus cells. At the All-American Conference it was concluded that shreds are unimportant if they float for at least two minutes after agitation of the fluid.

3. Frequency of urination normal and nocturia absent.

4. Prostate and seminal vesicles normal to palpation and free from pus cells. Lecithin present in prostatic secretions in normal amounts. In many instances it is virtually impossible to obtain the desired degree of freedom from pus cells in these secretions. Cessation of treatment followed by a normal sexual life for a few months will usually clear up the remaining pus cells.

5. Patency of the urethra. As the patient is being prepared for dismissal, sounds should be passed to determine the patency of the urethra and for their therapeutic effect. If this is done gradually, it will not be followed by a discharge.

6. Discharge following silver nitrate treatment, if any, negative as regards gonococci, both microscopically and bacteriologically.

7. Normal testicles, epididymes, and vasa.

8. Absence of discharge on physical exertion and on the injection of vaccines.

In conclusion Hartman says:

1. The cultivation of the gonococcus can be done as simply as that of any other organism, provided the medium is warmed before the inoculation and kept warm until the oxygen tension has been reduced and the tube is transferred to the incubator.

2. The ability to cultivate the gonococcus seems to decrease first after treatment, and seldom increases again. The finding of gram-negative intracellular diplococci is the second factor to disappear; the subjective and objective findings persist very much longer, and the patient cannot be considered cured until they have been entirely eliminated.

LOUIS GROSS, M.D.

Lévy-Weissmann: Anorectal Gonorrhoea (La blennorrhagie ano-rectale). *J. d'urol. méd. et chir.*, 1923, xiv, 13.

Reference is made to Hebrew and Greek descriptions of this disease in the pre-Christian era. In 1788 Hecker gave the first detailed description of it. In 1871 Rollet stated that the anal mucosa is less sensitive to the infection than the conjunctiva. In 1874 Bonnière successfully transplanted the infection from the conjunctiva to the anus but failed to implant it in the rectum, a fact he attributed to the difference in the type of epithelial cells in the two areas. In 1881 Gosselin and Dubar confirmed this assumption but since then it has been refuted as the organism can now be recognized with the microscope.

The rarity of the disease is only apparent. Especially in the cases of prostitutes, it has been confused with other conditions. It occurs more frequently in the female than the male because in the former the anatomical relationships favor anal contamination, and menstruation and pelvic inflammation favor intestinal stasis.

The condition may be caused by direct inoculation, indirect inoculation (finger, sponges, thermometer, etc.), and auto-infection. The relative infrequency of indirect inoculation is due to the relative insusceptibility of the anal region. The cylindrical epithelium of the rectum, like that of the urethra, offers easy passage to the gonococcus, and the organism buries itself in the mucosal folds. A normal anal mucosa is a good barrier, but in the presence of eczema, ulcers, and superficial inflammation which lower its vitality the development of infection is favored.

The appearance of the anus varies according to the severity of the infection. Light cases show only a diffuse redness with or without swelling. In cases of medium severity there is greater swelling with desquamation, and the radiating folds are covered with yellow or greenish pus. In the severe cases ulceration with fissure formation follows. In acute cases, the rectal walls are found red and thickened; in the late stage they are granular.

KELLOGG SPEED, M.D.

SURGERY OF THE BONES, JOINTS, MUSCLES, TENDONS

CONDITIONS OF THE BONES, JOINTS, MUSCLES, TENDONS, ETC.

Polettini, B.: Osseous and Cartilaginous Neoformations Resulting from Grafts of Fixed Tissues (Ulteriori contributo allo studio di neoformazioni ossee e cartilaginee determinate da innesti de tessuti fissati). *Arch. ital. di chir.*, 1923, vii, 169.

In this article Polettini reports the results of experiments in which he grafted pieces of aorta, powdered bone and cartilage, and cartilage extracts into the ears of rabbits.

In five of the fifteen experiments with grafts of aorta the graft was examined at the end of seventy days, in six at the end of eighty-two days, and in four at the end of one hundred and seventy days. In each instance the graft and the surrounding tissues were studied in serial sections. Histologic examination showed disappearance of the muscular fibrocellular tissue, the infiltration of fibroblasts, and calcification of the elastic fibers. In other cases giant cells were found among the elastic fibers, while in still others there was complete or nearly complete resorption of the graft. In five cases, clear evidence of new bone formation was found about the graft.

In the experiments with powdered bone and cartilage and in those with cartilage extracts the results were always negative as regards the proliferation of bone and cartilage.

Polettini concludes that bone and cartilage grafts contain substances capable of exciting the activity of connective tissue. The importance of the area in which a graft is introduced was proved by the fact that osseous and cartilaginous neoformation was found when auricular cartilage, bone, or fragments of aorta were grafted into the ears of rabbits but not when they were grafted subcutaneously into their backs.

W. A. BRENNAN.

Knaggs, R. L.: Osteitis Fibrosa. *Brit. J. Surg.*, 1923, x, 487.

Osteitis fibrosa is a disease of bone in which part of the osseous framework and its marrow is replaced by fibrous tissue. This disease may be caused by the extension of a joint infection or septic irritation. Arthritic joints sometimes show transparent areas in the bones entering into their formation. Erosions of the bone may be found or cavities filled with a gelatinous mucoid substance.

Osteitis fibrosa may occur as a primary affection. The author discusses four types of cases, viz., Type 1, those in which the disease is characterized by a uniform mass of fibrous tissue; Type 2, cases with a solid fibrous mass which shows a tendency to degenerate and form cysts; Type 3, cases in which

much bone is formed and the disease shows signs of coming to an end; and Type 4, cases with single cysts of bone.

To illustrate cases of Type 1, Pollard's case is cited. The patient was a child of 5 years who had injured her leg when a year old. The bone swelling was noted one and one-half years later. There was no pain. A solid mass of fibrous tissue occupied the middle third of the tibia. Sections showed anastomosing bone trabeculae enclosing spaces filled with a substance resembling the fibrillar matrix of growing bone. At this stage of the disease the sectioned bone shows a solid area of fibrous tissue sharply differentiated from apparently healthy bone.

An example of the second type of case was a case reported by Clegg and investigated by Eve. The patient was a man 24 years of age who had sustained a fracture near the middle of the tibia ten years previously. The tibia was enormously expanded. Its entire upper half was converted into four or five large cysts. The lower half showed a more homogeneous appearance with a few cysts. The bone itself was only a reticulated shell with a small area of cancellous tissue beneath each articular cartilage. No capsule was found.

Occasionally in some specimens there are definite masses of new bone, but as a rule the production of bone in cases of Types 1 and 2 is not sufficient to be of note.

To illustrate cases of Type 3, three cases are cited. This stage seems to be a later development of the disease found in cases of Types 1 and 2.

In the case of a woman, aged 37 years, the tibia became painful after an injury sustained six years previously and amputation was necessary. Its upper half was found to be transformed into a minutely cancellous bone-like tissue so devoid of lime salts that it was pliable and cut readily with a knife. The compact wall and medulla had been replaced by this tissue.

In a case of Type 4 seen by the author there was a cyst of the humerus. Fibrous connective tissue filled the spaces between the trabeculae and presented numerous small cysts.

The histology of osteitis fibrosa is fairly constant. Bone marrow is replaced by a dense vascular connective tissue which is composed of fusiform or branched cells with outrunning processes and may show a whorled arrangement. All fat disappears. The connective tissue replaces the osseous framework. Numerous scattered foci of new bone which are formed throughout the connective-tissue framework eventually coalesce and form sclerosed masses of bone. Ossification begins either by metaplasia of small patches of connective tissue or by the deposit of calcareous granules around a connective-tissue

cell in a matrix formed by the connective tissue itself. An intermediary stage of fibrocartilage has been observed by Elmslie, but is very uncommon.

The origin of the cysts is not clearly traceable in sections. There seems to be a tendency toward the development of areas of degeneration in the connective-tissue framework. In most cases the cyst contents are a pale yellow serum suggesting liquefaction. Small-cell infiltration is absent.

The disease usually begins in childhood or during the growing period, and if left to itself may persist throughout life. The patient is not seen until it is pronounced. He then seeks treatment because of enlargement of a bone, deformity, fracture, or a limp due to shortening. Fracture frequently occurs, and tumor formation is an occasional complication. The most common tumor is the giant-cell myeloma. Malignant disease may supervene and end life.

The disease includes the destruction of a tract of osseous tissue and its replacement by fibrous tissue. Bone is impaired to such an extent that it dies. In suppurative inflammations bacteria destroy the vitality of bone. In tuberculous inflammation, toxic influences cause disintegration. Toxic substances may be produced by micro-organisms, tissue metabolism, and intestinal factors.

The treatment must be directed against the cause. Foci of sepsis must be removed and errors in diet corrected.

Various surgical procedures have been adopted. Curettage of the fibrous material, removal *en masse* of a localized patch, and amputation have been done.

JOHN MITCHELL, M.D.

Moore, S.: Observations on Osteitis Deformans.
Am. J. Roentgenol., 1923, x, 507.

Since Paget's article on osteitis deformans appeared in 1877, nothing further has been learned regarding the etiology and pathogenesis of the disease.

Osteitis deformans may be defined as a general disease of the skeleton, the chief manifestations of which are bone enlargements and subsequent deformity. It usually progresses slowly, gradually involving the entire skeleton, but in some cases may remain in a single bone. There are numerous theories as to its cause: Geographical, climatic, and racial factors, and sex seem to play no part in the etiology. Syphilis, carcinoma, and infectious diseases have not been demonstrated as a cause, and trauma does not seem to be of importance. The most striking association is that of circulatory disease, both arterial and cardiac.

The onset of Paget's disease has never been described. When the condition is manifest it has been present for some time. Its progress may be rapid or slow. The bones of the thigh, legs, pelvis, and skull are first involved. No bones are exempt, but the forearm, hands, and feet are seldom involved. When the disease is fully developed it causes increasing deformity and disability. Both mental and physical activity are impaired. The symptoms

vary with the stage of the condition. The deformities seem to be due to weight-bearing upon the softened bone, but this theory does not explain deformity of the skull. In Paget's opinion the bones increase in length as well as other dimensions, and curvature is produced by fixation of the extremities of the softened bones.

The symptoms are almost wholly objective and the diagnosis must rest on the objective findings. The X-ray findings are changes in the texture, size, form, and outline of the bone involved. An increase in bulk is the most significant. A rarefied condition is manifest in the cortex of the long bones. The compact layer is replaced by a wide-meshed, reticulated structure, in the interstices of which is a softer tissue relatively deficient in calcium. A later appearance shows bone condensation.

Osteitis deformans must be differentiated from all other bone conditions causing enlargement, deformity, rarefaction, and condensation. These are syphilis, tumor, chronic inflammation, hypertrophic changes, osteitis fibrosa cystica, osteomalacia, hyperostosis cranii, and leontiasis ossium.

In osteomalacia there is no enlargement of the bone. Syphilitic involvement is associated with loss of substance and accompanying repair. Only tumors producing ossification should cause confusion. These are new growths originating in the bone and metastatic carcinoma. Osteoplastic carcinomata of the bone usually cause an asymmetrical increase in size. Chronic inflammatory states exhibit predominance of repair processes. The author cites four cases as follows:

CASE 1. The patient was a man 53 years of age who, in his forty-ninth year, suffered a fracture of the left femur. Prompt and satisfactory union resulted. Six months later he again fractured the same femur at a slightly higher level and again there was good repair. X-ray examination at that time suggested a sarcoma but the final diagnosis was Paget's disease.

CASE 2. The patient, a woman aged 58 years, complained of nervous tremors and pain over the entire left side of the body. Examination revealed a spindle-shaped enlargement of the left tibia, which was bowed outward and forward. X-ray examination revealed typical Paget's disease.

CASE 3. The patient was a woman aged 58 years. Following the extraction of a tooth, pain began in the upper portion of the left side of face. Later, "several bones in the nose were removed." Examination showed a prominence of the left side of the face. The teeth were widely separated and the alveolar process prominent. A gasserian operation gave incomplete relief. Difficulty was encountered on account of the great vascularity of the skull, which was increased in thickness. The X-ray examination revealed typical Paget's disease.

CASE 4. In this case the diagnosis was made from the X-ray picture alone. The third lumbar vertebra was enlarged symmetrically and showed the textural changes characteristic of Paget's disease.

JOHN MITCHELL, M.D.

Hutchinson, R. W.: *The Roentgenological Diagnosis of Bone Tumors.* U. S. Naval M. Bull., 1923, xviii, 679.

In the X-ray diagnosis of bone tumors the point of origin of the growth must be considered first, that is, whether it arises from the cortex, the medulla, or the periosteum. Carcinoma is ruled out if the growth originates in the periosteum as the latter contains no epithelial cells. Carcinoma cells are metastatic in bone and begin in the region of the nutrient artery. Sarcomata may originate in the cortex, medulla, or periosteum.

The second point to be considered is whether the cortex has been destroyed or not, and if it is not destroyed, whether it is expanded. Benign tumors expand the cortex rather than destroy it.

The third point is that of bone production. Carcinoma never produces new bone. Round-cell and spindle-cell sarcomata do not produce new bone. Consequently, periosteal, osteosarcomata, enchondromata, osteomata, and hæmatomata must be considered. Malignant disease lays down new bone perpendicular to the shaft. Benign tumors lay down new bone parallel with the shaft.

The fourth point is that of invasion. Benign tumors push aside the soft tissues, while malignant tumors include the soft tissues, in their growth. Metastatic carcinomata from the prostate to the pelvic bones and to the femur appear to be definitely increased in density. Bone destruction is less evident. Metastases from carcinoma of the breast, lungs, skin, or uterus cause destruction of the bone with no increase in density.

Hypernephroma has the same appearance as carcinoma of the prostate. Round-cell sarcoma originates in the medulla and destroys in all directions. The cortex is destroyed and not expanded. Round-cell sarcoma invades the surrounding tissues early. Spindle-cell sarcoma does not invade or destroy as rapidly as the round-cell sarcoma. Periosteal sarcoma is the most characteristic. It originates in the periosteum and invades the tissues with little change in the appearance of the cortex. In the early stages a number of fine lines of calcium deposits can be seen extending perpendicularly into the soft tissues. Later on the cortex is invaded and destroyed. Osteosarcoma appears more dense and massive and shows much earlier destruction in the cortex than the periosteal sarcoma. It occurs also in youth and early adult life. Periosteal and osteosarcomata are the only malignant tumors producing new bone. In comparison with most sarcomata, giant-cell sarcoma is benign. It does not tend to metastasize. It arises in the medulla and destroys a portion of the cortex. Its common site is the ends of long bones, usually the femur and tibia. It is a tumor of middle age.

Myeloma is a malignant growth which grows slowly. It shows multiple focal areas of destruction under the cortex. The cortex is thinned out but never destroyed. The presence of Bence-Jones bodies in the urine assists in the diagnosis.

Myxomata resemble bone cysts. They occur in youth and may become malignant.

Enchondromata and osteochondromata may be entirely or partially cartilaginous in origin. They occur early in life and originate in the medulla over the epiphyses. They expand, but do not destroy, the cortex.

Osteomata are benign tumors growing from the cortex. In structure they resemble bone. They do not invade, but push the tissues aside, and usually occur in the young.

Bone cysts resemble enchondromata. They originate in the medulla, and expand, but do not destroy, the cortex.

Fibromata are rare tumors. They do not invade and contain no new bone. They cannot be differentiated from bone cysts.

Hæmangiomas are not bone tumors, but large, round, soft-tissue swellings. They contain old bodies of calcification. Ossifying hæmatomata are commonly seen in cases of scurvy in children. Calcium is laid down in layers parallel with the shaft.

JOHN MITCHELL, M.D.

Taylor, R. G.: *Roentgen Gastro-Intestinal Studies of Patients with Chronic Deforming Arthritis.* *Am. J. Roentgenol.*, 1923, x, 424.

Between thirty and forty cases of chronic deforming arthritis were studied with the X-ray. Bands and kinks were found in the ileum and large intestine. Surgical correction of the faulty intestinal mechanism gave relief in some cases and medical treatment seemed to give relief in others.

The conclusion is drawn that in cases of chronic arthritis, routine and thorough gastro-intestinal examination is well worth while.

DENNIS W. CRILE, M.D.

Brunn, H., and Fleming, H. W.: *Cervical Rib.* *Surg. Clin. N. Am.*, 1923, iii, 615.

The author reports three cases. The first was that of a girl 12 years of age who complained of a sharp pain in the right shoulder of recent onset. The X-ray revealed the presence of a cervical rib on the right side. Since the first examination the pain has lessened considerably and there are no nerve or circulatory changes. This case is to be kept under observation.

In the second case certain types of exercise had caused pain in the right shoulder and down the right arm for the past twenty years. The X-ray revealed the presence of a cervical rib on the right side. Operation was advised but not accepted.

The third case was that of a woman 30 years of age with blueness and numbness of the right hand which was aggravated by cold, pain from the shoulder to the elbow, and swelling of the extremity. On examination a small hard tumor mass was found in the right supraclavicular fossa. On pressure this mass caused pain down the arm. Pulsation was noted high in the axilla but not below. The blood pressure in the right arm was zero. The pain

was felt over the distribution of the radial and median nerves. The surface capillometer showed a brisk flow in the left arm but a very sluggish flow in the right.

At operation the vertical limb of the incision was carried along the anterior border of the lower cervical portion of the trapezius, and the horizontal limb a little above the middle of the right clavicle and extending down almost to the sternoclavicular joint. The external jugular vein was ligated. The incision being extended deeper, the transverse cervical artery and vein were severed and tied. When the brachial plexus was exposed the rib was found pressing upon the posterior cord, this causing the radial and median nerve symptoms. The scalenus medius muscle was separated and the rib exposed, stripped of its muscle attachments, and removed from the transverse process of the seventh cervical vertebra with its periosteum intact. The wound was then closed without drainage.

Recovery in this case has been slow but steady. The circulation has improved but the hand is still sensitive to heat and cold. There is no longer any pain.

Cervical ribs are bilateral in 80 per cent of cases, but in 95 per cent of these the symptoms are unilateral. Certain of the lower animals have cervical ribs. They are present also in the fetus but disappear before birth. Their occurrence in man may be considered atavistic or a reversion to type. As frequently there is a neuropathic diathesis in these cases, operation sometimes does not entirely relieve the symptoms. The symptoms are nervous or circulatory, depending on the relationship of the rib to the plexus and artery. The X-ray usually renders the diagnosis certain.

WILLIAM J. PICKETT, M.D.

Gouldesbrough, C.: Osteo-Arthritis of the Spine.
Proc. Roy. Soc. Med., Lond., 1923, xvi, Sect. Med., 63.

The author reviews 196 cases admitted to the hospital with a provisional diagnosis of renal calculus. He classifies them as follows: Calculi present, nineteen cases (9.7 per cent); calculi not present, 144 cases (73.4 per cent); cases not re-examined, twelve (6.1 per cent); osteo-arthritis of the spine, seventeen cases (8.7 per cent); nephroptosis, one case (0.5 per cent); calcareous deposits, two cases (1.0 per cent); and bone growth, one case (0.5 per cent).

This classification shows that there were nearly as many cases of osteo-arthritis as cases of stone. Gouldesbrough therefore concludes that many cases of osteo-arthritis of the spine have been diagnosed as renal calculus. He mentions three types of osteo-arthritis of the spine—two completely distinct and the third a combination of the two.

In the first type the earliest indication is the appearance of small spikes on the lateral borders of the articular margins of the vertebræ. These spike-like projections tend to coalesce and form a complete bridge between the several vertebræ. The disease

may be unilateral or bilateral. The part chiefly affected seems to be the dorsal region.

The second type is uncommon. It appears to consist of an erosion of the intervertebral fibro-cartilaginous disc leading to fusion of the vertebræ.

Examination of dried skeleton spines showed that in the first type there is a deposition of calcium salts in the lateral borders of the anterior common ligament which may spread and fuse over the entire anterior surface.

In the X-ray picture the outlines of the normal bony vertebræ, which are more opaque, show through the other shadows. This proves that there is no true bony proliferation of the vertebræ.

The author believes the explanation of the two distinct types of spinal osteo-arthritis rests upon the fact that in all osteo-arthritic conditions there is an atrophy of the muscles of the surrounding parts. The ligaments then become slackened and permit the approximation of the bony segments. Pressure causes erosion of the cartilage, and ossifying changes begin in the anterior ligament before the erosion. If the ossifying process has progressed far enough, the first type of the condition results, and if the erosion outstrips the ossifying process the result is the second type of osteo-arthritis.

JOHN MITCHELL, M.D.

Schuster, O. F.: Limitation of Flexion of the Foot Through Shortened Calf Muscles and Its Non-Surgical Correction. *Med. Times*, 1923, li, 138.

The condition described is found most frequently in women who have worn high-heeled shoes constantly for several years. Other causes are prolonged rest in bed due to illness in which the foot is allowed to drop, weak-foot, flatfoot, muscle trauma, and poliomyelitis affecting the anterior muscle group.

The symptoms of restricted dorsiflexion are fatigue, pain in the front of the lower leg, cramps in the calves, and pain in the soles of the feet. The foot cannot be dorsiflexed to the normal angle of 75 to 70 degrees. The defect usually does not become noticeable until a low-heeled shoe is worn.

Tenotomy is undoubtedly the correct procedure for pronounced shortening. Stretching of the calf muscles under anæsthesia followed by fixation in a plaster cast is a good remedy, but many patients cannot spare the time necessary for this treatment. In the method employed at the foot clinics of New York for the past ten years the calves are baked for about half an hour at a temperature of 250 to 300 degrees Fahrenheit and then treated by deep-kneading massage for about fifteen minutes and the inverted foot forcibly flexed on the leg several times to the limit of tolerance. This is done every second day, and the patient is given appropriate exercises at home. A moderate shortening will be corrected in five to eight weeks without any discomfort or loss of time.

The many devices designed for the correction of the condition are not necessary in the milder cases and can be used only when the patient can afford to

abstain from work. Among those who have devised apparatus are Heidenhain, Hoffa, Strohmeyer, Scarpa, Little, and Shaffer. The Shaffer apparatus, which is the best known and most widely used, was designed primarily for the correction of contracted feet or non-deforming club-foot.

The author has devised an apparatus for the gradual stretching of the posterior muscle group with the foot in inversion which is operated by springs. As in the use of the Shaffer shoe, the stretching should be preceded by deep massage of the calf muscles or by baking and massage, should not be continued longer than twenty minutes at each sitting, and should be carried out daily if possible.

The patient must supplement the treatments with exercises at home, morning and night. The author recommends three exercises tending to lock the mid-tarsal joint and dorsiflex the foot.

DANIEL H. LEVINTHAL, M.D.

SURGERY OF THE BONES, JOINTS, MUSCLES, TENDONS, ETC.

Dunn, G. R.: The Obliteration of Bone Cavities in Chronic Osteomyelitis by Free Fat Transplantation. *Minnesota Med.*, 1923, vi, 379.

From experimental work on dogs and from the results in clinical cases Dunn believes that the free transplantation of fat is a valuable procedure for the obliteration of cavities in bone due to osteomyelitis. These cavities should be practically free from bacteria at the time the transplantation is done. In Dunn's opinion, the fat grafts survive as such and are not replaced by bone.

DENNIS W. CRILE, M.D.

Dorrance, G. M., and Bransfield, J. W.: Immediate Plastic Operations in Injuries Involving Tendons or Joints. *Ann. Surg.*, 1923, lxxviii, 100.

The authors advocate immediate plastic operations upon injuries involving tendons or joints. Débridement, primary suture, and mechanical cleansing of the wounds should precede the plastic, but no delay should be permitted after the preliminary cleansing. Exposed tendons or joints are apt to become infected and to slough, and antiseptic dressings tend to destroy the linings of joint cavities.

Three cases are reported in which good results were obtained by an immediate plastic operation. The first was a case of exposed tendon and joint in a finger, the second a palmar injury with exposure of the superficial tendons, and the third a compound fracture with an open joint and exposure of the superficial tendons.

The technique was that usually employed for constructive plastic surgery of the hand. An abdominal flap was raised by means of parallel incisions, the potentially infected hand was placed under the flap after careful mechanical cleansing, and the edges of the wounds were sutured.

JOHN MITCHELL, M.D.

Steindler, A.: Orthopedic Surgery of the Upper Extremity. *Minnesota Med.*, 1923, vi, 431.

The disabilities of the upper extremities are morphological and dynamic. By this the author means that they are due to position or to motor inability. He prefers regional distinctions because positional and dynamic distinctions are not practical.

The position of greatest disability to the shoulder is fixation in adduction and inward rotation. The principal motion of the shoulder is abduction. Abduction is inhibited by contractures following injuries to the capsule, tendon tears, subdeltoid bursitis and birth palsy, bone injuries, and other conditions. In all kinds of paralysis it may be entirely lost.

The position of greatest disability in the elbow is extension. The principal motion is flexion. Flexion extension is inhibited by contractures after bone injuries, ischæmic contractures, traumatic and inflammatory ankylosis of the joints, and all forms of paralysis.

The position of greatest disability in the wrist is full flexion. Flexion deformities occur in all kinds of injuries.

The position of greatest disability in the finger is hyperextension in the metacarpo-phalangeal joints; in the thumb, that of abduction extension. Finger motion is inhibited following injuries of the bone and inflammations about the joint.

In shoulder contraction due to birth palsy the treatment of choice is bloodless manipulation of the joint. In manipulating the joint the all-important question is whether the lesion is intra-articular or extra-articular. Intra-articular lesions do not permit correction by forcible manipulation. In manipulation of a joint harboring adhesions blood effusion will form more adhesions.

When the contracture of birth palsy does not yield to passive stretching, Sever's operation, which consists essentially of an open-tenotomy of the contracted tendon of the subscapularis, is performed. Cases in which lime salts are present in the supraspinatus tendon must also be operated upon.

The flail shoulder is encountered in paralysis of the deltoid muscle in anterior poliomyelitis. The surgical indication is arthrodesis of the shoulder. The shoulder joint is opened by a U-shaped incision around the acromion, the tip of which is chiseled through and deflected downward. After the operation a cast is applied with right-angle abduction and slight forward flexion in children, and abduction to 70 degrees and slight forward flexion in adults. The cast is left in place for three months and then split for active and passive motion.

In the elbow joint arthroplasty is indicated. A U-shaped incision is made from the outer to the inner border of the humerus, crossing the base of the olecranon. The articular ends of the bones are carefully constructed and the joint is immobilized in plaster in acute flexion for eight or ten days. A splint is then applied and active motion begun. Passive motion follows three weeks later.

The flail elbow is encountered in paralysis due to anterior poliomyelitis. Arthrodesis of the elbow cannot be applied to children because of the uncertainty of the outcome. The flexors of the fingers and wrist can be used for flexion of the elbow by transposition. By this method the flexor carpi radialis, palmaris longus, and flexor carpi ulnaris are isolated from the inner epicondyle of the humerus together with the superficial head of the pronator radii teres, pulled upward, and fastened into the intermuscular septum of the humerus between the triceps and brachialis anticus $1\frac{1}{2}$ in. higher up. The leverage of these muscles is thus changed so that they act as flexors of the elbow. After the operation the elbow is placed in a splint, and two or three weeks later active and passive motion is begun. The splint remains in place for from two to six months.

In pronation contractures of the forearm the surgical procedure is resection of the pronator radii teres and section of the pronator quadratus.

In cases of flexion contracture of the wrist resulting from spastic paralysis or Volkmann's contracture conservative treatment should be used first. Operation, if resorted to, consists in lengthening the flexor tendons. With regard to the drop wrist, correction of the deformity and the restoration of function must be attempted. Tendon transplantation is indicated when it can give not only active extension, but also stability in active extension. It is indicated in some cases of peripheral paralysis, such as musculospiral paralysis, in which the entire flexor group of muscles is intact. In the majority of cases, however, arthrodesis is necessary. A simple dorsal incision of the wrist is made between the extensor pollicis longus and the extensor indicis proprius. A wedge resection of the lower end of the radius and part of the scaphoid semilunar bones is done. The cast is applied in dorsiflexion.

In paralysis of the thumb, the thumb is adducted and cannot be opposed to the other fingers. For the correction of this condition a plastic operation is done in which the long flexor is split and its outer half carried upward and backward to the base of the basal phalanx.

In the spastic group the catching of the thumb under the fingers is prevented by the implantation of the extensor indicis proprius upon the long extensor of the thumb.

In cicatricial fractures the pedical flap method is used. The after-treatment is especially important.

Success depends upon muscle education and re-education. The author has introduced and developed standard exercises for this purpose.

JOHN MITCHELL, M.D.

Mercer, W.: The Treatment of the Flail Elbow Joint with a New Operation of Arthrodesis.
Lancet, 1923, cciv, 796.

Mercer describes an original operation for producing arthrodesis of flail elbows. With the use of the posterior incision, the muscles are freed from the

bone, but the periosteum is left attached. All sclerosed bone is removed, and for a short distance above the end of the humerus the periosteum is raised in a cuff so that the end of the bone is left bare.

The end is then made square with a rough file and a square hole is made in the region of the upper ends of the radius and ulna. The square end of the humerus is fitted into the square hole, and a drill hole is made from side to side through the radius and ulna and through the lower end of the humerus. A stout silver wire is then threaded into this small drill hole and brought around the bone and twisted so that the twist will come in front of the joint. The area is then covered with muscle and the wound closed without drainage.

Depending upon the manner in which the square hole is made, the elbow can be fixed at practically any angle desired.

The author reports two cases with very satisfactory results. He condemns the use of artificial silk ligaments and fascial transplants and expresses little faith in the Jones skin plastic fixation of the elbow. He prefers arthrodesis to arthroplasty.

DENNIS W. CRILE, M.D.

Cowan, J. F.: Excision of the Knee Joint. *Surg. Clin. N. Am.*, 1923, iii, 633.

Excision of the knee joint usually results in firm union between the femur and tibia. Such osseous union is demonstrated by stereoscopic roentgenograms in which bony trabeculae may be traced from the femur to the tibia. When an irregular area of lessened density is seen between the bones, there is fibrous union. Occasionally definite clefts appear between the bones and upon examination the patients demonstrate varying degrees of motion in the knee joint.

In the author's opinion the difference is not due to infection, because all the cases operated upon healed by primary union and any of the results described may occur in cases of old traumatic or infective arthritis.

Of nineteen excisions done upon the normal knee joints of dogs, two were followed by normal union, three by firm fibrous or fibrocartilaginous union, eight by loose fibrous union, and six by a definite new joint with cartilage and synovial membrane. Failure of bone union was due to local factors.

In a second series the sawed bone surfaces were fixed in various ways; for example, by shortening and suturing the capsule by wiring or by overlapping the patellar tendon. In every instance there was bony union along the entire extent of the sawed surfaces.

The reparative process proceeds in an orderly manner. Hemorrhage from the vessels occurs into the marrow spaces, and the blood is extravasated for varying distances into the marrow of each bone. Coagulation takes place and fibrin which is deposited on the sawed surfaces seals the marrow spaces and its vessels. Fibroblasts proliferate and convert

lymphoid into fibrous marrow. Capillary buds of endothelium appear in the marrow spaces. The clot is invaded and replaced by granulation tissue consisting of an oedematous network of fibroblasts and endothelial buds.

Successful union must occur if vascular communication is established between the bone ends. The more accurate the approximation the smaller the blood clot and the more certain the osseous union. In all cases in which the bones were kept in apposition bony union occurred rapidly.

Faulty approximation of the bone favors the ingrowth of granulation tissue from the periosteum, and as this is a hardy connective tissue it invades and organizes the clot between the bones rapidly, thus preventing fusion of the vessels of the medullary calluses.

The plane mode of excision often results in poor juxtaposition of the sawed bones because of the difficulty of sawing in the proper horizontal plane. If a uniform contact surface is not obtained a varus or valgus malposition results.

The author prefers the concavo-convex method. The lower curved incision across the joint is used. This is continued through the patellar ligament and the joint surfaces are exposed. The semilunar cartilages and crucial ligaments are dissected free. The femur is sawed in a plane parallel with the under-surfaces of the condyles. The tibial head is sawed across in a concave manner from front to back. The posterior ligament is shortened by four mattress sutures of kangaroo tendon. The leg is then extended and the wound closed. Plaster of Paris is applied from the groin to the foot. In six weeks the cast is replaced with a brace, which is worn until union is solid. JOHN MITCHELL, M.D.

Miller, O. L.: Tendon Transplantation in the Lower Extremity. *South. M. & S.*, 1923, lxxv, 298.

The author states that surgery is less effective the nearer the approach to the vital centers of the nervous, respiratory, circulating, or digestive systems. In the lower extremity the result is poorer the nearer the approach to the hip. The most successful result in tendon transplantation can be obtained only over stable skeletal lines. Tendon transplantation about the upper thigh is limited to two procedures: (1) transplantation of the fascia lata into the substance of the trochanter to relieve the laxity in the joint capsule and the luxating head, and (2) transplantation of the fascia lata into the femur just below the trochanter to form an abductor of the hip in the absence of the gluteus medius.

Re-enforcement of the lagging quadriceps by transplanting a hamstring forward into the patella is often satisfactory. No tendon transplantation yet done about the knees has been able to relieve the badly flexed or flaccid knee.

To treat a paralytic foot successfully means to master foot stabilization. Deformities of the foot may be classified as the paralytic club-foot with the tibial muscles stronger than the peronei; the para-

lytic club-foot (equinus) with the tibial and peronei muscles fairly well balanced, but the weaker dorsoflexors overcome by the strong gastrocnemius soleus; the paralytic flat-foot with the peronei stronger than the tibials; and calcaneus, with a dorsiflexor stronger than the Achilles group. Valgus is frequently associated with calcaneus deformity. Not all paralytic feet with varus demand transplantation of the anterior tibial tendons, nor do all feet with valgus demand transference of the peronei or the extensor proprius hallucis tendons. Stabilization will take care of these deformities. When the foot is in varus and the muscle shows even slight strength the anterior tibial tendon should be transplanted. The peroneus longus and brevis tendons are transplanted into the heel cord. If they show power when the foot is in valgus deformity, the peroneus longus may be inserted into the internal cuneiform to aid the anterior tibial tendon. The peroneus longus works well as an adductor. In valgus foot the extensor proprius hallucis may be used to reinforce the anterior tibial tendon, and in hammer-toe deformity may be transplanted to the head of the first metatarsal. In paralysis of the Achilles tendon with active peronei, the peronei may be transplanted to take the place of the Achilles tendon. JOHN MITCHELL, M.D.

Silver, D.: The Operative Treatment of Hallux Valgus. *J. Bone & Joint Surg.*, 1923, xxi, 225.

In hallux valgus the great toe is deflected toward the outer border of the foot and there is subluxation of the phalanx on the metatarsal head. Prominence on the inner side of the great toe joint is caused by bone hypertrophy and bunion formation, but mainly by exposure of the inner portion of the head as a result of the subluxation. The internal lateral ligament and the inner portion of the capsule are stretched, while the external lateral ligament and the external portion of the capsule are correspondingly shortened. The extensor and flexor tendons and sesamoid bones are displaced to the outer side of the joint, and the abductor hallucis, which is displaced toward the plantar surface, is therefore at a mechanical disadvantage.

At operation the usual incision is made, the fibrous capsule is exposed, and a Y-shaped incision is made through the internal lateral surface to form a distal flap with its base attached to the phalanx and dorsal and plantar flaps. The great toe is then abducted, a thin layer of the cortex with exostoses is removed with a small portion of the articular cartilage, and the edges are rounded off.

For the formation of an external capsular flap, superior and inferior longitudinal incisions are made through the capsule from the top of the phalanx back to the posterior limits of the capsule. These incisions are then connected by a vertical incision through the capsule close to the base of the phalanx, and at the same time the attachments of the abductor and obliquus hallucis are divided. The great toe is then held in 45 degrees abduction, the distal flap of the new internal lateral ligament is

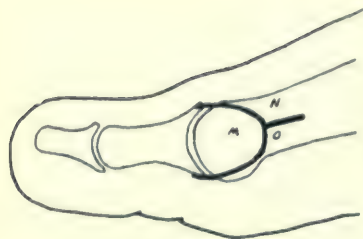


Fig. 1

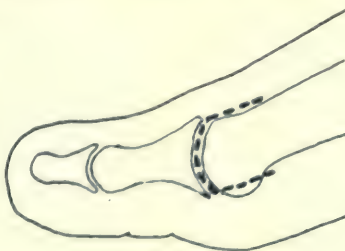


Fig. 2

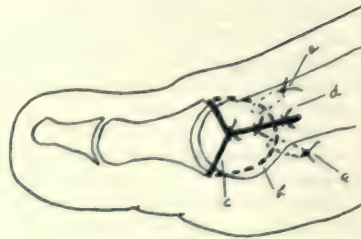


Fig. 3

Fig. 1. The position of the Y-shaped incision which is made through the internal portion of the capsule shown by the heavy line. *m*, distal flap. *n*, dorsal flap. *o*, plantar flap.

Fig. 2. Position of incision through the external portion of the capsule shown by the interrupted line.

Fig. 3. Method of suturing the distal, dorsal, and plantar flaps. *a*, mattress suture. *b*, distal flap drawn back beneath the dorsal and the plantar flaps is shown by interrupted line. *c*, position of dorsal and plantar flaps when sutured shown by heavy line. *d*, interrupted sutures through dorsal and plantar flaps.

(Silver: *Operative Treatment of Hallux Valgus*)

sutured in position to the dorsal and plantar flaps, the skin incision is closed, and an aluminum splint is applied to maintain extreme abduction.

In the after-treatment a bias flannel bandage is applied daily from within outward over the dorsum to overcome the spreading of the anterior arch, and then obliquely forward to force the small toes downward and inward. Walking on the outer border of the foot is begun in a week, and shoes may be worn in from three to four weeks, the splint being removed and replaced by adhesive strapping to maintain over-correction. An anterior leather lacing is substituted for the flannel bandage to correct spreading of the anterior arch after walking is begun. Hot and cold baths are employed with passive abduction and a short course of intensive training in proper standing and walking. RUDOLPH S. REICH, M.D.

FRACTURES AND DISLOCATIONS

Hass, S. L.: **Fractures in Transplanted Bone.** *Surg., Gynec. & Obst.*, 1923, xxxvi, 749.

Grafts of any tissue depend for success upon the ability of the cellular elements of the graft to remain viable until such time as new circulation is established from the host.

Some investigators claim that the osteoblastic cells of a bone transplant survive and aid in the reparative processes. Others maintain that there is complete degeneration of the cells of the transplant, and that reparative processes depend upon osteoblastic ingrowth from the host.

The author believes that transplanted bone has an inherent power of regeneration.

Immediately after an injury an outpouring of blood and lymph occurs. This is followed by an aseptic inflammatory reaction with the formation of granulation tissue and the organization of the blood clot. Osteoblasts appear in increased numbers in the region of the periosteum and endosteum and about the haversian canals. A cartilaginous callus is formed, which is first transformed into osteoid tissue and later becomes calcified.

Following the transplantation of a bone graft an initial stage of degeneration occurs, but the microscope reveals the survival of some of the osteogenetic cells in the graft. Proliferation of new bone is also seen. These processes occur in transplanted bone even when it is transplanted into muscular tissue and away from other osseous tissue.

Four groups of experiments were performed upon dogs to determine whether there is sufficient energy for bone repair in a fractured transplant and for the regeneration of the transplant itself.

In the first group an entire metacarpal or metatarsal was completely removed from a foot, fractured, and replaced in the normal position in the foot. In three of the six cases there was definite union of the fractures in the re-implanted bones. In the fourth an angular deformity occurred but callus was present. In the remaining two cases the period of observation was too short for definite conclusions.

In the second group of experiments the third metatarsal was removed, fractured, and transplanted into the muscles of the back. In five of the seven experiments there was definite evidence of union of the fractures. Healing varied from cartilage formation to the osseous stage and was similar to the healing of a fracture in normal bone.

In the third group of experiments bones were removed, boiled, and re-implanted in their normal position. There were no signs of proliferation in this group. The boiled bone acted as a foreign substance and showed evidence of degeneration.

In the fourth group of experiments bones were removed from the feet, fractured, boiled, and transplanted into muscle. No evidence of cartilaginous or osseous proliferation was found.

In the fifth group of experiments a metatarsal was removed and fractured, one-half of the bone was boiled, and both fragments, the boiled and the unboiled, were re-implanted. It was found that there is sufficient power of proliferation of the cells of one-half of a re-implanted bone to produce callus sufficient to unite it to the dead remaining half.

In the sixth group of experiments the metacarpal was removed and fractured, one-half was boiled, and both halves were embedded in the spinal muscles with their fractured ends approximated. One experiment showed definite union of a live with a dead segment.

The author concludes as follows:

1. Fractures in transplanted bone, even when buried in muscle, united firmly and in a manner similar to that of a fracture under normal conditions.
2. Fractures in boiled transplanted bone never united or showed signs of proliferation.
3. Fractures in transplanted bone, one-half of which had been boiled and the other half of which was alive, united even when the bone was buried in muscle.
4. The experiments reported are a crucial test of the independent, inherent, osteogenetic power of the cells of transplanted bone.

JOHN MITCHELL, M.D.

Behrend, M.: The Longevity of Plates and Other Foreign Bodies in the Treatment of Fractures of Long Bones. *Atlantic M. J.*, 1923, xxvi, 585.

The length of time that plates and other foreign bodies used in the treatment of fractures may remain in position depends upon the type of fracture—whether it is simple or compound—and whether infection results following the operation.

In simple fractures in which it is possible to maintain perfect alinement with a metal plate it is not necessary to remove the plate unless there is irritation or infection.

Metallic substances may remain *in situ* indefinitely without causing inconvenience. As proof of this the author cites a case of habitual dislocation of the ulna in which nails put in place in 1916 remain in the arm today, and a case of fracture of both femora in which Sherman plates are still in place after four and a half years.

The necessity for the use of metal plates is not as common in fractures of the upper extremity as in those of the lower.

Proper position is essential for good function. If it is impossible to obtain the position necessary for good function, an open operation must be done.

According to Lane, plates need not be removed if the operative technique is correct. The author uses the Lane technique entirely.

In conclusion Behrend states that the surgeon should never fail to remove foreign material when necessary, should treat fractures by the closed method whenever possible, and should not hesitate to perform an open operation when it is indicated.

JOHN MITCHELL, M.D.

Sever, J. W.: The Rational Treatment of Fractures of the Upper End of the Humerus: Report of End-Results. *J. Am. M. Ass.*, 1923, lxxx, 1603.

In a careful review of the literature the author was unable to find any reference to the treatment of fractures of the upper end of the humerus in the

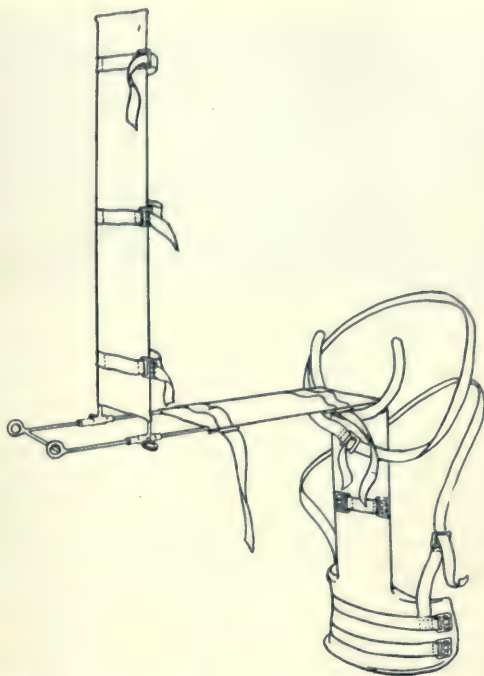


Fig. 1. Abduction splint. There is a sliding upright for the forearm, with a cross-bar at the end of the horizontal arm for the attachment of traction. The split ring at the axillary end is for fixation of the shoulder. The vertical body portion should extend from the axilla to well below the crest of the ilium, almost to the trochanter, just long enough to allow a comfortable sitting position. It should be no wider than the width of the arm.

position of abduction, external rotation, and elevation.

These fractures are generally caused by a fall with the arm held in abduction, the hand pronated, and the humerus outwardly rotated. The tuberosity of the humerus comes forcibly into contact with the tip of the acromion, and as a result the tuberosity is broken off. There may be a fracture of the neck of the humerus, a dislocation of the humerus, or a combination of these conditions.

There are two main types of fracture of the greater tuberosity. In one there is a crack running through the base of the tuberosity, and in the other the entire tuberosity is forcibly pulled off and rotated backward and outward by the pull of the supraspinatus, infraspinatus, and teres minor muscles. These fractures may be complicated by fracture of the surgical neck, impaction of the head and shaft, or dislocation.

Entire epiphyseal displacement is not uncommon in young persons with fractures of the neck of the humerus before the epiphysis is united. The entire head may be rotated upward and backward, and often there is a coracoid dislocation. Sometimes this fracture and dislocation may be manipulated into position, but usually open reduction is necessary.



Fig. 2. Splint applied. There is traction on the arm. The figure-of-eight strap around the left shoulder prevents the arm and splint from riding forward.

The more severe types of fractures are associated with capsular tears and exudate into the joint, which add considerably to the subsequent disability. Consequently, early motion after reduction is an important factor in the after-treatment, and this is accomplished much more easily with the arm in the abducted and externally rotated position than by the old method of holding the arm in adduction.

Fractures of the upper end of the humerus are classified as follows:

Class 1. Simple fracture of the greater tuberosity without displacement: The type with upward and outward rotation of the fragment may be associated with dislocation of the shoulder.

Class 2. Simple fracture of the surgical or anatomical neck without displacement or with impaction of the fragment: (1) with displacement of the fragment, but without dislocation of the head; (2) with displacement of the fragment and complete dislocation of the head, generally subcoracoid.

Class 3. Fracture of the neck of the humerus, generally comminuted, with fracture of the shaft and without dislocation of head.

Traction with abduction and external rotation may be accomplished by means of the ordinary Thomas arm splint when the patient remains in bed during the treatment. Extension may be obtained by means of adhesive plaster straps fastened to the arm and forearm from a point considerably above the elbow, or traction may be obtained from a plaster cast applied to the arm and forearm with the elbow held at right angles. Ten days to two weeks is sufficient time to insure enough union to permit the patient to be up and about in an ambulatory splint maintaining the correct primary position. In simple impacted fractures this splint may be employed from the beginning.

RUDOLPH S. REICH, M.D.

Andersen, E. E.: *The Late Results of the Reduction of Congenital Dislocation of the Hip* (Spæetresultate nach Repositio der Luxatio coxae congenita). *Bibliot. f. Læger*, 1922, cxiv, 401.

The author reports the findings of a subsequent examination of fifteen hip joints which were reduced

ten or more years ago according to the method of Lorenz. Of these, two were normal both anatomically and functionally; two showed a good anatomical result with normal function; three, a good anatomical result with good function; six, a fair anatomical result with good function; one, a poor anatomical result with good function; and one, a poor anatomical result with only moderately good function. In all of these cases except the first two the roentgenogram showed more or less marked change, usually coxa vara, but also coxa valga.

DRAUDT (Z).

Martin, E. D., and Knight, A. C.: *A Preliminary Report of a New Method of Treating Fractures of the Neck of the Femur.* *N. Orleans M. & S. J.*, 1923, lxxv, 710.

The limitations of the well-known conservative methods of treatment are mentioned and three cases are reported in which the head of the femur was fixed to the trochanter by driving two 3-in. No. 8 wooden screws through the trochanter into the neck and head, and screwing them tightly enough to hold the fractured surfaces in close and firm apposition until union was firm, i.e., for at least three months.

This treatment insures good apposition and firm fixation of the fractured surfaces, thereby giving the best chance for union of the fracture. It allows free motion in the joints during osteogenesis, improves the circulation, prevents atrophy of the muscles, and permits the patient to be up on crutches in about half the time required by the old methods.

It also allows aged patients to move freely in bed, and makes it possible to place them in a sitting position as soon as the wound is healed.

DENNIS W. CRILE, M.D.

Burdick, C. G., and Siris, I. E.: *Fractures of the Femur in Children.* *Ann. Surg.*, 1923, lxxvii, 736.

This report covers 268 cases. The fractures occurred most frequently in the middle third of the femur, next most frequently in the upper third, and least frequently in the lower third. There were no fractures of the head or trochanter, and only two of the neck of the bone. Most of the fractures were oblique and only 3 per cent were comminuted.

In general the type of treatment was extension with continuous skin traction. In many of the cases reduction was effected on a Hawley table and a plaster spica cast was applied for about six weeks. Open operation was done in 7.5 per cent of the cases treated between January, 1916, and July, 1917, and in only 3.5 per cent of those treated between October, 1919, and October, 1922. In the authors' opinion the adoption of skeletal traction with calipers has reduced the necessity for open operation, and in children it is rarely indicated, if ever. Some of the cases were treated successfully on Bryant's frame with suspension. In compound fractures the most satisfactory results were obtained when a Thomas splint was used.

There were four cases in which re-fracture was necessary because of unusual strain imposed upon the healing bone. Some of the cases showed lengthening on the fractured side, but in 132 there was no shortening when the patient was discharged from the hospital. In sixty-six cases there was $\frac{1}{2}$ cm. of shortening, but at the end of a year thirty-seven of these showed no shortening. This proves that slight shortening in children is often outgrown.

The conclusions drawn are as follows:

Fractures of the femur in children are almost invariably followed by a good functional result. A satisfactory anatomical reduction is not essential for perfect function.

The Hodgen or Thomas splint is of value in cases of compound fracture when the administration of an anæsthetic is contra-indicated and when skeletal traction is to be employed.

Open reduction is rarely indicated.

DENNIS W. CRILE, M.D.

ORTHOPEDICS IN GENERAL

Shackleton, W. E.: The Causes of Chronic Backache. *Illinois M. J.*, 1923, xlv, 36.

The more chronic types of backache include the ache of constitutional diseases and toxæmia, reflex backache, postural backache, and backache due to local conditions. Static backache is due to excessive strain and stress on the muscles and ligaments of the back. This occurs in persons who have been confined to bed for several days and in those who have been placed under the influence of an anæsthetic. Pain results from overstretching the ligaments which, when unsupported by the muscles, are not strong enough to maintain the normal lumbar curve. Spondylitis deformans is the common postural defect of old age. It is not necessarily due to infection. Habitual labor in an unnatural position causes backache. Compensatory spinal curvature or muscular hypertrophy is frequently seen among laborers. The shortening of an extremity from a fracture, coxa vara, hip disease, or uneven growth is another cause of backache.

Backaches follow fevers, tonsillitis, syphilis, influenza, smallpox, tuberculosis, focal infections, metabolic disorders, and toxæmia due to intestinal absorption. These are difficult to explain except on the basis of a loss of muscle tone.

Reflex backache is due entirely to involvement of the pelvic viscera, the sensations being reflected through the ganglion and felt as pain in the corresponding somatic segment. As it descends from the intervertebral foramen, the lumbrosacral cord passes over the pelvic brim and is therefore subject to the pressure of pelvic or abdominal tumors or organs. Local conditions causing backache may be metastatic, infectious, or traumatic. Myositis is the most common. Usually this is caused by direct violence. Tumors of the back which cause backache are usually metastases from a primary carcinoma of the uterus, prostate, or breast; an X-ray examination is usually essential for the diagnosis.

The chronic infections of the spine are osteoarthritis, osteomyelitis, tuberculosis, and syphilis. Osteomyelitis is not a common spinal lesion and is usually metastatic from osteomyelitis of other bones. Tuberculosis of the spine is very common. Syphilis of the spine is a disease of adult life.

Congenital malformations may cause backache. The common malformations include spina bifida occulta, segmented sacrum, and anomalies of the transverse processes of the fifth lumbar vertebra. Chronic backache may be caused by injuries. Spondylolisthesis or forward dislocation of the fifth lumbar vertebra on the sacrum is a cause of chronic backache. It results usually from the slipping and twisting of the body during the carrying of a heavy load.

Sacro-iliac subluxations are static and traumatic. In cases of the traumatic group there is a definite history of direct or indirect trauma, such as a twist or a fall on the feet or buttocks.

Compression fractures are fairly common. They may become chronic because undiagnosed. X-ray examination in the oblique, the antero-posterior, and the lateral positions will aid in the diagnosis.

JOHN MITCHELL, M.D.

SURGERY OF THE BLOOD AND LYMPH SYSTEMS

BLOOD VESSELS

Glass, E.: A True, Spontaneous Aneurism of the Left Common Carotid Artery the Size of a Goose Egg Which Was Cured by Total Extirpation; Rapid Disappearance of Severe Brain Disturbances Following the Operation (Ein durch Totalexstirpation geheiltes gaenseeigrosses, wahres, spontanes, arterielles Aneurysma der Carotis communis sinistra mit raschem Rueckgang schwerer Gehirnstoerungen nach der Operation). *Arch. f. klin. Chir.*, 1923, cxiii, 502.

The aneurism of the left common carotid artery reported had developed five days before the case was seen by the author. The patient, a man 33 years of age, experienced a sudden attack of pain in the left side of his neck while playing the trumpet. Lues was denied, but could not be ruled out positively although the Wassermann reaction was negative.

Glass performed a total extirpation of the aneurism, which necessitated resection of a portion of the common, external, and internal carotids. The internal jugular vein was also resected.

Immediately after the patient recovered from the anæsthetic there were signs of severe brain disturbances, viz., paralysis of the right arm and leg and of the right side of the face. In the evening of the same day total motor aphasia, alexia, apraxia, sensory aphasic disturbances, and right hemianopsia developed. By the following morning these had begun to recede, and by the third day the recovery was marked. At the end of a month, when the patient was discharged from the hospital, the cerebral disturbances had nearly disappeared. Two months after the operation he returned alone to his home in Brazil.

The author attributes the cerebral disturbance to cerebral ischæmia rather than embolism because of the absence of Perthe's interval and the rapid and practically complete recovery. GLASS (Z).

Ridlon, J., and Berkheiser, E. J.: Calcareous Degeneration of the Dorsal and Lumbar Aorta as a Cause of Backache. *J. Am. M. Ass.*, 1923, lxxx, 1831.

Since impairment of the circulation is generally recognized as a source of discomfort in the feet, the authors consider it logical to assume that pain in other parts of the body may result from impairment of the circulation in the muscles of the parts. If this is true, calcareous degeneration in the thoracic and abdominal aorta may be a cause of backache. The authors report three such cases.

In the back, bone spurs and bridges may cause sensitiveness to pressure and stiffness, but unless the spur impinges on a nerve it is the circulatory change

that is responsible for the pain. Circulatory disturbances which cause ischæmia of the muscles are associated with muscular pain and stiffness.

Factors predisposing to arteriosclerosis include syphilis, advanced age, alcoholism, gouty diathesis, nicotinism, and diabetes. Changes in the vessels which diminish the lumina are obliterating endarteritis, peri-arteritis, vasculomotor disturbances associated with spasm of the arterioles, and senile calcification.

Intermittent claudication has an insidious onset with periods of freedom from discomfort, general weakness of the part involved with associated paræsthesia, absence of pain when the part is at rest, and gradual increase of the pain to such severity following exercise that rest becomes imperative. The characteristic feature of the muscular pain due to ischæmia is its rapid disappearance after a few minutes of rest and its return with the use of the muscles.

The symptoms of ischæmia of the musculature due to calcareous blood vessels is somewhat different. The patient complains of stiffness, muscular weakness, paræsthesia, aches, soreness, and pain of the part involved. The pain, moderately exaggerated on use of the part, is present constantly for weeks or months and then may disappear for a long time. The periods of freedom may be due to the establishment of a better collateral circulation.

The authors conclude that no examination of a painful back is complete and conclusive without an examination of the circulatory system, and that in many cases the treatment of the painful back should be directed by the internist rather than the orthopedist. WALTER C. BURKET, M.D.

Douglas, J.: Ligation of the Common Iliac with a Fascial Strip for Aneurism. *Ann. Surg.*, 1923, lxxvii, 630.

The patient whose case is reported was a man 25 years of age who had had an amputation of the leg at the juncture of the upper and middle third of the left thigh because of infection in a compound fracture sustained twelve years previously. Seven years later a mass in the gluteal region was found on exploration to be an aneurism, probably of the guteal artery. Subsequently the peripheral veins showed marked dilatation and there was severe pain in the hip. At operation, performed June 10, 1922, the iliac vessels were exposed through an incision above and parallel to Poupart's ligament and the peritoneum reflected inward. The common internal and external iliac arteries were found dilated, lengthened, and tortuous, and the iliac veins dilated. A strip of fascia lata 25 by 2.5 cm. was removed from the right thigh, passed several times around the com-

mon iliac artery about 5 cm. above the bifurcation, and tied. The fascial strip was used because the walls of the vessel were so thin on account of the marked dilatation that an ordinary suture might easily cut through them. The patient made an uneventful recovery; the aneurism has decreased in size, and he is now free of pain.

VERNE G. BURDEN, M.D.

Haeggstroem, P.: Three Cases of Embolectomy (Drei Faelle von Embolektomie). *Upsala Läkaref. Foerh.*, 1922, xxviii, 107.

One of the cases reported was that of a 41-year old woman who had had a cardiac defect since childhood, developed an embolus in the right femoral artery, and died the day after an embolectomy. Autopsy revealed high-grade mitral stenosis, beginning congestive changes in the lungs and liver, splenic infarct, extensive renal infarcts, and emboli in both iliac and both hypogastric arteries.

The second case was that of a woman 69 years of age whose condition was diagnosed as embolism of the left femoral artery. At operation the thrombus was found much higher. An attempt at removal by arteriotomy and fishing for the thrombus with a bronze-aluminium wire was unsuccessful because the thrombus was fixed to the arterial wall over the greater part of its extent.

The third case was that of a woman of 52 years who had a mitral stenosis and developed an embolus in the arteries of the left lower extremity. The embolus was removed by arteriotomy on the same day, but amputation was necessary a week later and death occurred at the end of a month. Autopsy showed high-grade mitral stenosis with hypertrophy and dilatation of the right ventricle and both auricles, a ball thrombus the size of a plum in the left auricle, congestion in the lungs, spleen, and right kidney, and smaller thrombus masses in the right iliac artery and both hypogastric arteries.

GLASS (Z).

Desfosses, P.: Kinesitherapy in the Treatment of Phlebitis of the Lower Limbs (Cinésithérapie dans le traitement des phlébites des membres inférieurs). *Presse méd.*, Par., 1923, xxxi, 169.

Desfosses discusses the pathology of phlebitis briefly and recommends kinesitherapy after the subsidence of the fever. In general, the patient should at first rest in a supine position with the limb enclosed in alcohol dressings covered with cotton and suspended in a Thomas splint or similar device, the knee in full extension and the foot at right angles to the leg.

The rectal temperature should be taken night and morning. The immobilization must be continued as long as embolism is feared, but it is generally believed that there is little danger after fever has been absent for three or four weeks. Then, for a week, while the limb is still in a splint, all dressings should be removed. On the first day the skin should be bathed with soap and water and treated by very

superficial and soft effleurage with slight mobilization of the toes and metatarsal regions.

On the second day the movement should be extended to the tarsal joint and the patient required to make active movements of the toes. Each day thereafter the movement should be increased. In the second week more active motions should be allowed, and finally the 'sitting position may be permitted.

The third stage is one of further muscle training with special attention to the quadriceps femoris. A fourth and fifth stage involve muscle training in sitting, standing, and walking. The article includes diagrams of the movements recommended.

KELLOGG SPEED, M.D.

Brooks, B., and Martin, K. A.: Simultaneous Ligation of a Vein and Artery: An Experimental Study. *J. Am. M. Ass.*, 1923, lxxx, 1678.

In order to study the changes in an extremity which follow obstruction of the primary artery alone and the simultaneous occlusion of the vein and artery, three series of experiments were done.

1. Experiments in which the effect on the temperature of the tissues distal to the ligature was studied. It was found that ligation of the primary artery resulted in a fall in the temperature of all the distal tissues which was progressively greater the more distal the tissue temperature was measured. If the artery was obstructed and the temperature of the tissues distal to the ligature became constant at a level below normal but still above room temperature, occlusion of the vein resulted in a further fall. Occlusion of the vein alone caused a fall in the temperature of the entire extremity distal to the occlusion. Simultaneous ligation of the vein and artery resulted in a greater reduction of the volume flow of blood through the entire extremity than ligation of the artery alone.

2. Experiments to test the frequency of gangrene after ligation of the artery alone and after simultaneous ligation of the vein and artery. The findings in these experiments indicated that gangrene following arterial obstruction is dependent on some other factor than the amount of blood flowing through the vessels distal to the obstruction for when the primary artery of the extremity was occluded, the amount of blood flowing through the extremity was decreased, and when the primary vein and artery were occluded the volume flow was further decreased, but gangrene was less frequent. This was not due to retention of blood in the tissues, for the tissues require, not blood, but an exchange of certain substances from the blood. It is possible that the distribution of the blood with respect to small areas of tissue may be changed by simultaneous ligation of the vein because this depends on blood pressure rather than on blood volume. Ligation of the vein and artery would cause greater intravascular pressure in the capillaries and help to prevent the collapse of these vessels, this resulting in a more homogeneous distribution of the blood.

It is possible also that an intravascular pressure below a certain level is not compatible with the exchange of nutrient substances from within the vessels to the tissues. Simultaneous ligation of the vein may increase the intravascular pressure so that even though it diminishes the amount of blood flowing through the vessels, the tissue exchange may be adequate to maintain life.

3. Experiments in which the changes in blood pressure in the veins and arteries distal to the ligatures were measured after ligation of the artery alone and after simultaneous occlusion of the artery and vein. The intravascular pressure in both the arteries and the veins of an extremity was decreased by ligation of the artery alone. When the artery was ligated and the intravascular pressure in both arteries and veins became constant at a lower level than normal, obstruction of the vein resulted in a rise in intravascular pressure in both the arteries and the veins distal to the ligature. As the blood pressure in the veins rose proportionately more than that in the arteries, the difference in arterial and venous pressures was less after ligation of both the artery and the vein than when the artery alone was occluded.

SAMUEL KAHN, M.D.

BLOOD AND TRANSFUSION

Matolay, G.: A Case of Permanent Polycythæmia Following Removal of the Spleen (Ein Fall von dauernder Polycythæmie nach Milzextirpation). *Orvosi hetil*, 1922, lxvi, 379.

Six years ago the spleen was removed from an 18-year-old girl because of enlargement of the abdomen which, with jaundice, she had had since childhood. The erythrocyte count was 2,500,000 and the leucocyte count 20,000. There were few lymphocytes. The spleen and liver were greatly enlarged. Banti's disease was suspected but hæmolytic jaundice and splenic anæmia could not be definitely determined.

Three years later the patient suffered with headache, dizziness, and dimness of vision, and the color of her face was a decided bluish red. The blood count showed 5,120,000 erythrocytes and 3,700 leucocytes. The hæmoglobin equaled 95 per cent (Sahli). The neutrophile leucocytes equaled 55.2 per cent, the lymphocytes 37.8 per cent, the mononuclear leucocytes 5.3 per cent, and the eosinophiles 3.7 per cent.

Two years later the red blood corpuscles numbered 6,500,000 and the white cells 9,800. The hæmoglobin was 80 per cent (Sahli). The differential blood count showed neutrophiles 70 per cent, basophiles 0 per cent, eosinophiles 3 per cent, mononuclears 2 per cent, and transitional cells 3 per cent. The blood pressure was 120-160 (Riva-Rocci). Following the withdrawal of 200 c.cm. of blood by venesection the condition improved. The red blood corpuscles now number 5,500,000, and the white cells 9,000, while the hæmoglobin equals 76 per cent (Sahli).

VON LOBMAYER (Z)

Diemer, T.: Further Results of Attempts to Influence the Hæmagglutination Groups (Weitere Untersuchungsergebnisse ueber willkuerliche Beeinflussung der Hæmagglutinationsgruppen). *Mill. a. d. Grenzgeb. d. Med. u. Chir.*, 1922, xxxv, 464.

Experience has shown that blood transfusions may be followed by disturbances which, in some cases, may cause death and are dependent upon certain substances present in the blood. These substances, isoagglutinins and isohæmolysins, are variously divided, but according to their occurrence, four blood groups have been recognized.

Transfusions are undertaken in accordance with the results of testing the serum from the different groups. To a definite test serum, one or two drops of blood in sodium citrate are added in order to observe the agglutination in the hanging drop. The test serum can be obtained by withdrawing a few cubic centimeters of blood from a large number of persons and allowing it to coagulate.

Another fact brought out by research is that definite processes in the body may change the classification of the subject from one blood group to another. Further research is necessary to determine the factors controlling this change.

KOCH (Z).

Fisk, T. L.: A Gravity Method of Blood Transfusion. *N. York M. J. & Med. Rec.*, 1923, cxviii, 98.

The author discusses the advantages and disadvantages of the various methods of transfusion. The gravity method, he believes, may be used in from 60 to 75 per cent of cases in which transfusion is necessary. In his method the recipient is on the scale during the transfusion. The apparatus and the technique used are described in detail.

EMIL C. ROBITSHEK, M.D.

Nuernberger, L.: Clinical and Experimental Research on Blood Transfusion (Klinische und experimentelle Untersuchungen zur Frage der Bluttransfusion). *Zentralbl. f. Gynaek.*, 1922, xlvii, 1945.

No ill effects have been observed following transfusion when hæmolysins were present in the blood of the donor as well as in that of the recipient. The presence of hæmagglutinins in the blood of the donor does not cause disturbances, but their presence in the blood of the recipient has produced the well-known picture of intoxication. In order to guard patients from this accident, the transfusion of a test dose of 20 c.cm. has been tried. This was found to be successful but the procedure has the disadvantage that if hæmagglutinins are present in the recipient's blood, the joining of the vessels is done in vain. While it would be possible to inject as a test from 10 to 20 c.cm. taken from the vein by means of a syringe, this method might expose the recipient to repeated shocks before the proper donor was found.

Nuernberger describes a procedure which has been used also by Ravdin and Glenn and consists in bringing together on a slide and subjecting to gentle agitation one drop of a 10 per cent solution of sodium citrate and one drop of the blood of the donor and

of the recipient. If no agglutination appears at the end of three minutes, the blood of the donor may be used. Blood has been kept for transfusion for four weeks by placing it in a sterile flask, adding oxygen, and sealing the mouth of the flask by holding it in a flame.

The use of defibrinated blood is discussed briefly and condemned.

VORSCHUETZ (Z).

Burch, L. E.: Autotransfusion. *Surg., Gynec. & Obst.*, 1923, xxxvi, 811.

The author reports a case in which an autotransfusion was performed on a patient undergoing splenectomy. The operation was difficult as the spleen was bound down by numerous adhesions which were very vascular. Consequently considerable blood escaped into the abdomen. More than 800 c.cm. of this was recovered, citrated, strained, and injected into a vein at the elbow. By the time the abdomen was closed the transfusion was finished. When the transfusion was begun the pulse was 140 and barely perceptible, but at its completion was 102 and strong, and the patient's color was good. There was no reaction. The recovery from the operation was unusually smooth, and at the end of two weeks the patient was able to leave the hospital. The pre-operative and postoperative diagnosis of splenic anæmia was confirmed by the pathologic report.

In a study of the literature it was found that of 164 autotransfusions on record all but four were done in Germany.

From the literature the author concludes that autotransfusion is usually a safe procedure. In a limited number of cases there will be a reaction.

Sodium citrate is not essential as normal salt solution is an admirable substitute, and if neither of these is at hand, the pure blood may be re-injected.

Extra-uterine pregnancy will offer the widest field for the procedure, but in wounds of the spleen and liver, wounds of the lung producing hæmothorax, and operations in which a large amount of blood is

lost unavoidably, it will not only save life but will hasten postoperative recovery.

Contaminated blood should be given as a rectal drip.

Occasionally autotransfusion may be used to advantage in certain obstetrical complications such as placenta prævia, rupture of the uterus, and cæsarean section.

ROBERT M. GRIER, M.D.

Kayser, K.: Experimental Research in Hastening Blood Coagulation (Experimentelle Untersuchungen zur Beschleunigung der Blutgerinnung). *Verhandl. d. deutsch. Gesellsch. f. inn. Med.*, 1922, 322.

A new remedy has been added to the large number already used to check hæmorrhage. As with the others, the effect consists solely in hastening the coagulation of the blood and increasing the fibrin. Other factors, such as independent action of the vasomotor apparatus, etc., are not influenced. Beginning with the observed effect of injections of euphyllin or ethylendiamin in hastening blood coagulation, the endeavor was made to obtain a more definite effect by adding at the same time a second blood-coagulating agent. The addition of ethylendiamin acetate to calcium salts yields a crystalline substance which is easily soluble in water.

Experiments on rabbits showed that 1 c.cm. of a 10 per cent aqueous solution of this preparation far surpassed in strength and duration of effect all previously known coagulants. In man, a very slow injection of 10 c.cm. of a 2 per cent sterile aqueous solution was given without any undesirable consequences. At the end of twenty-four or even for as long as forty-eight hours the effect was still very pronounced. In a case of hæmophilia the bleeding was stopped in a few minutes after the usual methods of hastening coagulation had failed. In the author's opinion this remedy may be found of great value in checking internal and surgical hæmorrhages.

STEGEMANN (Z).

SURGICAL TECHNIQUE

OPERATIVE SURGERY AND TECHNIQUE; POSTOPERATIVE COMPLICATIONS

Blair, V. P.: Restoration of the Burnt Child.
South. M. J., 1923, xvi, 522.

Restoration of the burnt child should be begun as soon as surgically possible—the earlier, the better the result. Spontaneous epithelization of the wound is not necessary before skin grafting or flap operations are begun. Deformities requiring correction arise primarily from the contracting scar which replaces the lost skin. A contracture persisting over the child's growth period is apt to be complicated by under-development of the parts affected and by peri-articular fixations or joint and bone distortions. Abnormalities of the scar itself requiring treatment are keloid scar, early induration, late induration which may become cancer, and the persistence of an active pus infection in the scar.

For successful treatment it is necessary first to cut the scar sufficiently to allow the remaining skin and tissue to return to their normal positions. In long-standing cases, osteoplastic resection, joint manipulation, or tendon lengthening may also be necessary. Next, the resulting raw surface must be covered with epithelium by means of a Thiersch graft, a full-thickness skin graft, or a sliding or pedicle flap. The Thiersch graft, which the most is easily applied, gives the poorest cosmetic results and in healing contracts more than the others. A successful full-thickness skin graft will contract about one-fifth to one-half its area and is an excellent substitute except that it tans to a greater or less degree. In a clean field, where only skin is desired and slight tanning is not objectionable, the full-thickness skin graft is the graft of choice. The flap graft is thicker than the full-thickness skin graft, carries some subcutaneous tissue, does not tan abnormally, and may be placed in a field not absolutely clean.

Grafts or flaps are cut according to tin-foil patterns made either from the raw surface directly or from a previously made reconstruction on a plaster cast, and are sutured in place or supported on forms or both. The Thiersch graft is best supported on a wax form or on sections of fine marine sponges. Usually it is best obtained from the thigh, but if cut too thick it will subsequently grow hair. The full-thickness graft is taken from available skin that most closely resembles the skin about the area to be covered and is cut exactly the size of the space for which it is intended. Within twenty-four hours it will have an active blood supply and will bleed freely when incised. Unless this blood supply is limited or drainage is provided, the engorgement will endanger the life of the graft. The author obtains this result by means of a fine marine sponge

wrung out as dry as possible and applied under bandage pressure over xeroform ointment gauze. After one, two, or three weeks the dressing is removed, and the graft examined. If there is doubt as to the cleanliness of the field it is safer to examine after one week. The pressure must be just sufficient to prevent the engorgement but not to cause ischæmia. In the second or third week, if vesicles appear, painting the desquamated surface with a 1 per cent aqueous solution of silver nitrate once a day tends to control secondary infection with its associated destruction. In growing children the full-thickness graft takes best and gives the best results. Flaps are obtained from neighboring parts or transferred as "jump" flaps on the hand or forearm. When very thin or long flaps are used, delayed transplantation will insure their vitality. Homografts from mother to child, even if the blood "matches," begin to necrose after two weeks and are slowly lost. Burrows suggests obtaining the skin from a donor of about the same age as the recipient.

In treating an ectropion of the eyelids or lips, the Gillies outlay graft (a Thiersch graft applied over a wax form) is ordinarily most effective. By undermining the skin edge, the raw surface is made three times the ultimate size desired, and the Thiersch graft is draped over a wax form of corresponding size. The graft-covered form is held against the raw surface by suturing the tissues snugly around it. On the eyelid and the lip the subcutaneous muscles are closely attached to the skin, a condition most easily reproduced by the Thiersch graft. Ectropion of the nostrils is corrected most easily by making a transverse incision across the dorsum of the nose, sliding down the tissues, and filling the defect with a full-thickness graft.

The eyebrows may be well imitated by a full-thickness graft taken from the scalp behind the ear. If the graft takes perfectly, the hair will grow naturally. If a slight superficial loss of the graft occurs, the hair will be fuzzy, and if the full thickness of the epithelial layer dies, the hair will fail to grow.

Burnt ears must be unfolded and the defect covered with flaps or full-thickness grafts.

The arm bound to the side following an axillary burn is released by incising the scar bands. The defect is filled by a full-thickness skin graft or pedicle flaps. On the palm of the hand and in the fingers it is well to make the raw surface and the full-thickness graft larger than the original defect by undermining the bordering skin and turning it outward in flap form as this will allow for contraction.

In large areas repeated grafting may be necessary to compensate for partial loss or shrinkage of the grafts.

A simple thickening of the scar may be treated by shaving off the ridges and edges and applying a Thiersch graft, by the use of radium, by excision followed by the application of a full-thickness graft, or by a sliding flap or a pedicle-flap operation.

WALTER C. BURKET, M.D.

Pierce, G. W.: Surgical Treatment of Burn Scars.
Surg. Clin. N. Am., 1923, iii, 841.

The author reports three cases of severe burn scars treated with considerable success. His conclusions are:

1. Different degrees of burns give different types of scars. The first step in the repair of scars is an accurate estimate of the amount of tissue lost.

2. Early skin-grafting of burns is followed by a better scar and fewer contractures.

3. Keloid is a new growth and yields best to radiotherapy. Excision with radiotherapy is often indicated.

4. Plastic repair of burns is best done by flaps. The surgeon should rely mainly on the basic types of flaps.

5. Skin grafts are limited in their application, but are valuable about the eyes, nose, and mouth. Esser's epithelial inlay has many uses and is very reliable.

MARCUS H. HOBART, M.D.

ANTISEPTIC SURGERY; TREATMENT OF WOUNDS AND INFECTIONS

Spiegel, N.: Tetanus (Beitraege zur Lehre vom Tetanus). *Veroeffentl. a. d. Kriegs- u. Konstitutionspath.*, 1923, iii, 5.

In 122 cases of tetanus there were nine cases in which a true status lymphaticus was present in spite of the absence of apparent organ deficiency. Two cases showed a positive, and two a questionable, status thymicus. In five, there was a positive, and in one a questionable, status thymicolymphaticus. Two cases showed a positive status thymicus with questionable status lymphaticus, and two, a positive status lymphaticus with questionable status thymicus. Therefore, there is a relationship, not only between tetanus and status lymphaticus, as was assumed by Weichselbaum, but also between tetanus and status thymicus, and between tetanus and status thymicolymphaticus. Persons with these anomalies, especially status thymicolymphaticus, are more apt to succumb to tetanus than persons with a normal constitution. Constitutional anomalies of the type of pure status hypoplasticus are of no influence upon the mortality of tetanus. In 142 lung cases, bronchopneumonia due to various causes was found in sixty-nine. A "specific" infection seemed improbable.

The fact that enlargement of the spleen was found in about 24 per cent of the cases suggested a mixed infection.

Eighty-five of the histories reviewed gave the cause of death. Twenty-two deaths were due to uncomplicated bronchopneumonia (Pribram) and

thirty-six to heart failure (congested organs without hæmorrhages, œdema of the lung). Very frequently, congestion of the brain and an increase of the cerebrospinal fluid were found. In only four cases could sepsis be regarded as the cause of death.

Hæmorrhages in the muscles were found most frequently in the rectus and psoas muscles, where they were usually associated with waxy degeneration. Subendocardial hæmorrhages were discovered rarely, contrary to Ribbert's findings. It appeared that the waxy degeneration had preceded the hæmorrhage. Without doubt, pressure was a factor in the degeneration.

Gas distention of the intestines, which Moenckeborg regarded as characteristic of tetanus, was not observed in the majority of cases. Neither were thyroid changes conspicuous.

With regard to the type of missile, the author states that shell and mine splinters are particularly dangerous because they carry particles of dirt and clothing into the wound. Least dangerous are smooth, penetrating gunshot wounds. Shrapnel wounds come between these two types.

Mixed infections are of great importance. The manner in which the gas and tetanus bacilli influence each other is not known. It is surprising that bacteria which are carried into the brain, the spine, the breast, or the abdominal cavity very seldom cause tetanus. In such cases it is probable that the toxins are rendered harmless in the injured nerve tissue or in the exudations.

The six cases of late tetanus in the series suggested the presence of a latent infection and required more extensive serum treatment. As the injected antitoxin remains active for only fourteen days, Aschoff and Robertson claim that a second injection should be made eight days after the injury. When it is used methodically, tetanus antitoxin will prevent early as well as late tetanus with a reliability that borders on certainty.

KREUTER (Z).

Buzello, A.: Combination Treatment of Tetanus (Kombinationsbehandlung des Tetanus). *Ztschr. f. aerztl. Fortbild.*, 1922, xix, 427.

The author reports two cases and discusses the modern treatment of tetanus. Although tetanus serum is an excellent prophylactic, there is as yet no specific remedy for tetanus when once it has appeared. In the severe forms, various remedies are combined, according to the symptoms. The author lays stress on five points:

1. The neutralization of the toxins formed in the body before they attack the ganglion cells in the brain and cord. This is best done by a six-day series of intravenous injections of serum. Further doses may be harmful and will be of no benefit. If the incubation period has been very short, a single lumbar injection of 10 to 20 c.cm. may be given and the rest administered intravenously or intramuscularly within the next few days. If there is any considerable increase in the symptoms, the serum treatment should be stopped.

2. Local surgical removal of the infectious organisms. This should be done by incision followed by painting with tincture of iodine. The wound should be left open.

3. The alleviation of the spasms and the general reflex excitability. For this purpose, magnesium sulphate is best. This is a powerful poison which acts on the heart. As a 20 per cent subcutaneous injection (5 to 10 c.cm.) is dangerous, an equivalent quantity should be given as a 2.5 per cent intravenous injection only in case of necessity. The effect lasts for from one-half to one hour. In acute arrest of the heart action from an overdose, 5 per cent calcium chlorate (at the most, 10 c.cm.) should be administered intravenously. When the magnesium sulphate no longer suffices to combat the spasms, slow chloroform narcosis should be used. To avoid the continuous use of magnesium sulphate during the long duration of the spasms (thirteen days), Barcelli recommended injections of carbolic acid. The author has given subcutaneous injections of 20 c.cm. of a 5 per cent solution even twice daily without observing any general or local injury.

4. Rest. Sleep should be induced in the daytime by means of 0.02 gm. of morphine and 0.02 of pantopon, and at night by one or two doses of 1 or 2 gm. of chloral hydrate given by rectum.

5. General treatment. As a heart stimulant camphor is effective. A liquid diet should be given and the bowels kept open by the administration of senna leaves and glycerine injections. Irrigations are to be avoided as they cause spasm of the abdominal muscles.

BANGE (Z).

ANÆSTHESIA

Hewer, C. L.: The Effects of Vagal Trauma on the Anæsthetized Patient. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Anæst., 7.

The author describes four cases in which various kinds of direct trauma to the vagus nerve, either the right or the left, caused the sudden collapse of the anæsthetized patient. In three cases death resulted.

The heart stoppage occurs in diastole as the vagal fibers are distributed only to the sino-auricular nodes and auricles. After prolonged vagal stimulation the heart may begin beating slowly, a condition called vagal escape and due to the independent contraction of the ventricles. This phenomenon

apparently occurred in the one patient who recovered.

Reflex vagal stimulation, as in chloroform anæsthesia, may lead to results similar to those seen after direct stimulation.

From these facts it is evident that especial care is necessary in operating near the vagus, the symptoms dependent upon injury to this nerve must be recognized promptly, and the cause of the trauma must be removed immediately.

G. R. McAULIFF, M.D.

Rose, S. F.: Ethyl Chloride as an Anæsthetic for Minor Operations on Children. *Lancet*, 1923, cciv, 1258.

On the basis of experience in 15,000 dental cases, the majority those of children, the author regards ethyl chloride given with the closed method as the best minor anæsthetic because of its safety, the ease with which it can be administered, the reasonable duration of the anæsthesia it induces, the fact that the anæsthesia is induced rapidly, and the rapid recovery from effects of the anæsthetic.

G. R. McAULIFF, M.D.

Kutscha-Lissberg, E.: Experiences with Splanchnic Anæsthesia (Erfahrungen mit der Splanchnicusanæsthesie). *Wien. klin. Wchnschr.*, 1923, xxxvi, 216.

Following a critical review of his cases, the author summarizes his views on splanchnic anæsthesia as follows:

With the proper technique, splanchnic anæsthesia very seldom fails, but even under such circumstances complete analgesia is not always obtained. There seems to be more danger associated with the injection of anæsthetics into the splanchnic region than into other regions. Too rapid resorption with consequent intoxication, occasional prompt collapse, and sometimes late conditions such as atony of the stomach and intestines may result. Atropin seems to render these complications less frequent. Persons in whom the equilibrium between the splanchnic and vagus is unstable are especially endangered by splanchnic anæsthesia.

The use of splanchnic anæsthesia as a routine procedure will depend less on the technique of injection than on the choice of anæsthetic for a particular purpose and the possibility of preventing marked disturbances in the splanchnic and vagus equilibrium.

SALZER (Z).

PHYSICO-CHEMICAL METHODS IN SURGERY

ROENTGENOLOGY

Staunig, K.: *Practical Roentgen Spectrometry and Its Physical Basis.* *Am. J. Roentgenol.*, 1923, x, 479.

The "qualimetry" of roentgen rays (the determination of their hardness, their power of penetration, and the length of the waves) must form the basis of every practical use of the rays in general and for the dosimetry of roentgen therapy in particular. The methods used up to the present gave only an approximate estimate of the wave lengths of the radiation.

A new system can be built up only by means of the method of ray analysis made use of by physics. To this end the author, with March and Fritz, sought to make possible a direct insight into the roentgen spectrum and to perfect a method which might be adapted to the conditions of radiological practice and its simple resources. Simplicity, speed, and accuracy are essential. A single quantity which would be able to characterize with sufficient accuracy the polychrome complex of the radiations had to be found for every spectrum, corresponding to a radiation. In other words, it was necessary to find a key which would serve in practice as a simple term for each radiation. The final problem was the utilization of this key in practice.

This article gives a short résumé of the results of the physical experiments as they appeared to the author and his co-workers at the beginning of their research or were supplemented during the course of their work. Most of it, however, is an explanation of their spectrometric method of analysis and a description of their spectrometer and its use.

The new process has already led to a far-reaching uniformity and simplification of roentgenological methods. It is, and apparently will be, of importance for all branches of radiology. However, there will be no lack of objections to it. Especially at the beginning the objection may be raised that the discharge of the tension curve, which so far has been regarded of such great importance for the quality of the produced radiation in the different types of apparatus, cannot remain without considerable influence on the relative composition of each radiation and therefore on the curve of the spectrum.

It is true that other forms of the tension curve belong to the different types of tubes, the ion-tubes on the one hand and the Lilienfeld and Coolidge tubes on the other, since with the ion-tubes it has to do with the appearance of an explosive tension which is absent in the electron-tubes. Therefore, on account of the different discharges of tension for these types of tubes, the necessity of separately

ascertaining the quantitative working power for each with regard to the emitted radiation has already developed. It has been shown, however, that even for these types the quality of the radiation, that is, the form of the curve of the spectrum, is not obviously different. On the other hand, the results of testing gained up to the present time and the theoretical calculations by March have shown that an influence of the current tension curve on the distribution of intensity, such as has been ascribed to the different types of apparatus, is not due to them or is due to them in such slight degree as to be negligible in the practical utilization of the radiations.

ADOLPH HARTUNG, M.D.

Simons, A.: *An Experimental Contribution on the Problem of the Growth-Stimulating Effect of the Roentgen Rays on Normal Human Tissues* (Experimenteller Beitrag zum Problem der wachstumsteigernden Wirkung der Roentgenstrahlen auf normales menschliches Gewebe). *Fortschr. a. d. Geb. d. Roentgenstrahlen*, 1923, xxx, 300.

Simons proved that small doses of the roentgen-ray may stimulate the growth of normal human tissue by treating two of his finger nails with from one-third to one-sixth of an erythema dose and then comparing them with the corresponding finger nails which were not radiated. Even at the end of the first week the radiated nails were about $\frac{1}{2}$ mm. longer than the others. On further irradiation their growth was still further stimulated. GRAUHAN (Z).

Jenkinson, E. L.: *X-Ray Treatment of Tumors.* *J. Radiol.*, 1923, iv, 229.

This article is based upon a series of 300 cases of malignant tumors. The series include early- and late-stage tumors and tumors situated in almost every part of the body. They were all treated during a period of eleven months. A voltage of 200,000 was used. The patients were admitted to the hospital twenty-four hours in advance and subjected to a complete physical examination, including a blood study.

The routine was a cleansing enema the night before the treatment, no food during the preceding six hours, and no solid food the three hours immediately after the treatment. One dram of sodium bicarbonate in a glass of water was given three times daily during the course of the treatment. The latter usually consumed a week. By this prolongation of the course, the systemic reaction was lessened. The depth and relation of the lesion was carefully studied and an effort made to avoid radiating normal structures any more than necessary.

The author has noted improvement in patients with spinal metastasis secondary to carcinoma of the

breast, but he regards pulmonary metastasis from breast cancer as unresponsive to radiation. In cases of pulmonary metastasis secondary to sarcoma temporary relief can be given.

Of the three patients with gastric cancer who were treated, two reacted very well. In the case of the third the treatment was discontinued because of the severity of the systemic reaction. The results in carcinoma of the bladder were uniformly good but a word of caution is added regarding the use, of instruments or instillations within the bladder during the course of the treatments.

In cases of breast cancer it was found advisable to return to medium voltages because the greater penetration attained with the higher voltages is not suitable for these superficial lesions unless some artificial media is molded upon the breast to convert the cancer into a deep lesion.

In malignant tumors of the mediastinum, pancreas, bone, soft tissues (sarcoma), and pituitary, the best results have been only fair.

The results are summarized briefly as follows:

1. The blood count remained practically normal in the majority of cases.
2. Examination of the stool showed blood in only five of the abdominal cases.
3. Diarrhœa appeared in only a few cases.
4. Malignancy makes it impossible to give a definite prognosis. CHARLES H. HEACOCK, M.D.

Picard, H.: Roentgen Absorption in the Blood and Extracorporeal Irradiation of the Circulation in the Treatment of Cancer (Ueber Roentgenabsorption im Blut und extrakorporale Kreislaufbestrahlung zur Therapie des Krebses). *Strahlentherapie*, 1922, xiv, 467.

The technique of X-ray treatment of malignant tumors used to date is based upon the assumption that the tumor cells are peculiarly sensitive to the rays. On the other hand, the theory has been brought forward that the chemical changes are merely initiated by the rays and require for their completion all the fermentive and vital processes of the cells during the period of latency. This transformation of energy in the body is closely bound up with the absorption of the rays. The greater the absorption, the more powerful the effect.

Since the absorption of the roentgen rays increases with the height of the ordinal number of an element, the iron of the hæmoglobin is particularly suitable as an absorptive element and transformer of radiant energy. In addition, iron must be particularly effective biologically as it, itself, emits soft rays. This suggests that, instead of the tumor, the blood might be used for storing up roentgen energy. Accordingly, many roentgenologists render the tumor and the surrounding tissues actively hyperæmic by means of diathermy, injections of blood, and blood transfusion.

The author attempted to irradiate the blood outside the body by conducting it from the radial artery through a glass tube into the ulnar vein and exposing the tube with the blood passing through it to the

roentgen rays. Experiments on dogs failed because of the narrowness of the lumina of the vessels. When the harmlessness of the injection of rayed citrated blood into the circulation of rabbits had been demonstrated, the extracorporeal circulation described was established in the case of a cachectic woman suffering from an ichorous recurrence of a carcinoma of the breast with metastases in the glands. The length of time during which it was possible to expose the blood to the rays was only sixteen minutes because by the end of this time coagulation occurred in the glass tube. A positive result was not obtained as the patient died eight hours after the procedure. Further attempts have not been made because of the lack of suitable cases. HARMS (Z).

Pfahler, G. E.: Measurements on Two American Deep-Therapy Machines, with Special Reference to the Duane Method. *J. Radiol.*, 1923, iv, 225.

The Duane method consists in measuring the fraction of radiation that passes through a given thickness of filter by means of an ionization chamber. The latter is standardized by means of a d'Arsonval galvanometer in terms of electrostatic units of radiation. This unit is that amount of radiation which will ionize each cubic centimeter of air in the X-ray beam so that it will permit the passage of the quantity of electricity which will raise a sphere with a radius of 1 cm. to the unit of potential, i.e., 300 volts. Small "e" expresses one electrostatic unit of charge and large "E" their number. "E" multiplied by the number of seconds equals the corresponding number of small "e."

When Duane's method is used, the presence of leakage is first determined and then, by means of a standard cell, the reading that corresponds to one electrostatic unit of radiation is ascertained. Then the ionization chamber is placed in the path of the X-rays and another reading is obtained. By using this reading as the numerator and that made with the standard cell as the denominator, a fraction is obtained that represents "E," the number of electrostatic units of radiation.

The wave length is determined in practical work by placing the ionization chamber about 10 cm. beyond the filter and making a reading. Then a second filter of like thickness is added and a second reading is made. The second reading divided by the first gives a fraction. This is reduced to a percentage, and the wave length is obtained by Duane's chart.

By this method, the output of two deep-therapy machines was measured. Although conditions were about the same, one machine was from 20 to 30 per cent less efficient than the other. From the behavior of the tube in the case of the less efficient machine Pfahler felt certain that the radiation could be brought up to an equal value by increasing either the voltage or the milliamperage. These facts illustrate the fallacy of speaking only of voltage, milliamperage, etc. to denote dosage.

CHARLES H. HEACOCK, M.D.

Gotthardt, P. P.: *The Roentgen-Ray Ulcer and Its Treatment* (Das Roentgengeschwuer und seine Behandlung). *Fortschr. a. d. Geb. d. Roentgenstrahlen*, 1922, xxix, 746.

The author reports four cases of extensive X-ray lesions which healed slowly and only after the use of various remedies. There were two cases of burn due to the soft rays and two of injury due to the hard rays.

The thorough research of Rost has shown that in the skin the first structures injured are the cells of the basement layer and the newer layers of the prickle-cell layer. Therefore the matrix of the skin from which regeneration proceeds is excluded. The changes in the other layers are to be regarded as sequelæ.

The choice of treatment must depend upon the stage of development of the ulcer. When an X-ray ulcer is produced by a single overdose of the rays, it develops after a period of latency of from two to five weeks and is usually preceded by an erythema. When it is caused by an overdose given in multiple treatments repeated at short intervals, the irritation accumulates but there is no early erythema to announce the coming ulceration and the lesion does not appear until after a period of months or years. There is a progressive injury to the blood vessels which at first causes no symptoms, but reduces the nutrition of the tissues to the minimum. The ulcer then develops when the nutrition is still further reduced by pressure from clothing, the changes of old age, or other influences.

The chief symptom and the first to treat in cases of ulcer is pain. Cocaine, adrenalin, and preparations of orthoform are contra-indicated as they cause further contraction of the blood vessels. As direct treatment, surgery is best when it is technically possible. In the use of medical remedies the principle to be followed is the less the irritation the better. For moistening bandages, solutions of boric acid and peroxide of hydrogen are good. As non-

irritating salves, boric and zinc salves are recommended. To stimulate granulation, black, red, and gray salves are of value. Of physical methods, those which cause hyperæmia are best. The quartz lamp has proved particularly beneficial; at first, short general irradiation should be given, and later, local irradiations in addition. Radium in the form of radium mud has also been found of value.

Koch (Z).

MISCELLANEOUS

Kovacs, R.: *The Physiotherapy Clinic—A Necessity of the Modern Hospital.* *N. York M. J. & Med. Rec.*, 1923, cxviii, 10.

The importance of physiotherapy to the modern hospital was proved by the fact that during the war 30 per cent more men were returned to service from hospitals which employed physiotherapeutic measures than from the others.

The combined use of surgery and physiotherapeutic measures shortens the period of disability and in many cases saves the patient from becoming a cripple.

The equipment for a modern physiotherapy clinic should include all the recognized modalities such as electrotherapy, the static high frequency, galvanic, faradic, and sinusoidal currents, the X-ray, massage, therapeutic exercises, light therapy, baths, etc.

Success depends upon full equipment and a trained staff. The director should be a physician trained in physiotherapy.

The value of physiotherapeutic measures in cases of old fractures is beyond dispute. Hydrotherapy and massage with diathermy play an important part in successful treatment. Scoliosis, flat-foot, and other deformities demand physiotherapeutic measures. The therapeutic value of electricity in nerve injuries cannot be measured. Cases of osteomyelitis are benefited by lamp therapy after surgery.

JOHN MITCHELL, M.D.

MISCELLANEOUS

CLINICAL ENTITIES—GENERAL PHYSIOLOGICAL CONDITIONS

Fay, O. J.: Early and Late Lesions Due to Electric Injuries. *J. Iowa State M. Soc.*, 1923, xiii, 239.

The author makes a distinction between electric injuries in which the contact is instantly established without the formation of a spark gap, and electric burns caused by the presence of a spark gap.

Contact should be broken immediately, the rescuer first assuring himself of his own safety. Rubber gloves, or even a dry cloth or a dry board, may be used in breaking the contact. The rescuer should not touch the victim's bare skin.

Emergency treatment should not be delayed for a physician's arrival. The first few minutes are worth hours of attention later on.

The victim should be laid flat on his back with his head raised on a pillow, never lowered, and with his chest bared.

Artificial respiration and attempts to restore heart action should be begun at once. Stimulants should not be given by mouth until natural breathing is resumed.

All local injuries, with the exception of grave hæmorrhage, should be ignored until the general symptoms have subsided. A cold enema, the application of hot and cold water alternately to the chest, the subcutaneous or intravenous administration of camphorated oil or adrenalin, venesection, chloroform inhalations, or spinal puncture may be of benefit.

Electric burns should be treated like other burns. The resulting scar is usually less marked.

Electricity causes the greatest damage to the nerves and blood vessels, the injury to the latter sometimes resulting in gangrene. Amputation should not be done until a definite line of demarcation has developed.

The late effects are confined largely to the nervous system, but the prognosis is good even in cases with epileptiform attacks. Neuroses sometimes supervene and must be treated.

MARCUS H. HOBART, M.D.

Farr, C. E.: Ischæmic Fat Necrosis. *Ann. Surg.*, 1923, lxxvii, 513.

The author reports six cases of ischæmic fat necrosis and two cases suggesting this condition in which the diagnosis was doubtful. He states that about a dozen other cases have been observed during the past seven years. In every instance the condition was of recent origin and due to fairly severe trauma. The subjects were young and robust. The tumor masses persisted for as long as three months and then gradually disappeared or the patient no longer

returned for observation. As there were no active symptoms, operative intervention was deemed unnecessary.

Subcutaneous fat necrosis is of little importance in itself as its end-results are either complete resolution or the formation of fibrous-walled and calcareous cysts. It is of interest chiefly from the point of view of differential diagnosis. The relation of traumatic fat necrosis to pancreatic fat necrosis, to cyst formation, and possibly to true tumors is worthy of investigation.

It has been found comparatively easy to cause ischæmic fat necrosis in animals. Pancreatic disease or injury is not necessary for its development. Possibly no ferment action is concerned, the etiologic factor being simply ischæmia.

Bierich, R.: Experimental Tar Cancer: An Attempt to Determine the Character and Action of the Cancer-Forming Factors (Ueber den experimentellen Teerkrebs: Ein Versuch die Art und Wirkungsweise der krebsbildenden Faktoren zu bestimmen). *Klin. Wchnschr.*, 1922, i, 2272.

The cancer-forming action of tar is determined by its simultaneous and regular reaction with the protoplasm of the epithelial and adjacent connective tissue. The new properties which then appear are the direct function of the changed structure of both protoplasmic systems.

In research on the cancer-forming action of tar on the skin of white mice it was found that the effect is not limited to the site of local application on the epidermis, but that the active constituents penetrate the adjacent connective tissue and are finally taken up by the blood stream and excreted by the kidneys.

The tissues chiefly concerned in the cancer formation are the epithelium and adjacent connective tissue. In each of these, two stages of reaction can be demonstrated. In the epithelium there is first a hyperkeratosis and then a hypertrophy (an increase in physiological growth), and later, a stage in which downward growth occurs. In the connective tissue there is first a swelling of the fibers and the ground substance with marked increase of the elastin and mast cells, which continues until the connective tissue is penetrated by the epithelium. As soon as this penetration occurs the connective tissue becomes poor in nuclei, the swelling, the elastic fibers, and the mast cells disappear, and the epithelium spreads unchecked.

The first stage of the reaction in the connective tissue can be obtained alone by the subcutaneous injection of arsenic over a period of months or by a single intensive application of the roentgen rays. If the first effect of the tar on the connective tissue

is increased by arsenic, the cancer formation is arrested. Hence this reaction appears to determine the outcome of the cancer formation. TROMP (Z).

Nather, K., and Orator, V.: Refractometric Serum Investigations on Carcinoma and Predisposition to It (Refraktometrische Serumuntersuchungen ueber Krebskrankheit und Disposition). *Mitt. a. d. Grenzgeb. d. Med. u. Chir.*, 1922, xxxv, 611.

Freund-Kaminer and Neuberg discovered that a specific reaction takes place between the blood serum and isolated carcinoma cells. While it is still impossible to demonstrate this reaction with such certainty that it can be of use to the practicing physician, it throws light on certain biological processes. The question arises whether the reaction is a consequence or an important cause of the cancerous affection. In cases of carcinoma the blood serum is unable to dissolve or to disintegrate isolated carcinoma cells.

In addition to the serum obtained from cases of cancer, the authors studied the serum of sixty-three persons who were free from cancer. The subjects were divided into two groups, those under and those over 45 years of age. The most important finding of these examinations was that a considerable percentage of persons over 45 years of age have lost the power of disintegrating carcinoma cells, even when it is certain that no carcinoma has developed. Therefore the lack of a specific power of disintegration is not a consequence of cancer. There must also be a specific predisposition because the cell reaction remains positive after local removal of the cancer.

KOCH (Z).

Franke, F.: The Recognition of the Regional Recurrence of Carcinoma in the Skin (Zur Erkennung regionaerer Krebsrezidive in der Haut). *Zentralbl. f. Chir.*, 1922, xlix, 1885.

By careful excision of regional cutaneous recurrences after carcinoma of the breast, life may often be prolonged for years if the glands remain intact. The smallest nodule of a recurrence can be recognized by gently massaging a few times the portion of skin that appears suspicious. By this irritation the nodule which cannot be palpated and can scarcely be seen is rendered visible and palpable. On excision only a small number of carcinoma cells will be found. The toxins of carcinoma cells pressed into the surrounding tissues form papules similar to those of urticaria.

RUGE (Z).

GENERAL BACTERIAL, MYCOTIC, AND PROTOZOAN INFECTIONS

Wolff, K.: The Statistics and Bacteriology of Gas Oedema (Statistisches und Bakteriologisches zur Gasoedemfrage). *Veroeffentl. a. d. Kriegs- u. Konstitutionspath.*, 1922, iii, 1.

The author reports upon 184 cases of shrapnel wounds, particularly wounds of the lower extremities, which were treated in the period from 1914 to

1918. In the majority, the heart blood contained gas even a few hours after death, and because of the hæmolytic action of the gas bacillus, remained fluid for a long time. The internal organs and the vascular system appeared to become rapidly infiltrated with blood. The central nervous system showed nothing characteristic, and in the lungs the chief condition was oedema. The findings in the kidneys and suprarenals were not constant.

The disease begins usually in an injury to the muscles and spreads by way of the subcutaneous tissues and the loose sheaths of the nerves and blood vessels. Enlargement of the spleen, which is usually not present, indicates a toxæmia. The exciting organisms are the Fraenkel-Welch bacilli, and equally often bacilli of the symptomatic anthrax group (Type B) and the group causing malignant oedema (Type C). The Type B infection runs the most unfavorable course.

The cases may be differentiated into blue and brown according to the color of the cutaneous oedema. The blue cases are usually due to infection of Types B and C, and the brown to infection of Type A. Worthy of note in the brown cases are the severe oedema of the skin, the beer-brown color of the subcutis, and the relative freedom from involvement of the true skin. In the blue cases the chief characteristics are the intense involvement of the cutis, the marked hæmolytic color of the oedema, and the drier condition of the striated musculature. All forms show three stages: oedema, gas production, and necrotic breaking-down.

TOBLER (Z).

Ruge, C.: The Determination of the Virulence of Streptococci (Virulenzbestimmung der Streptokokken). *Med. Klin.*, 1923, xix, 200.

The methods used heretofore to determine the virulence of streptococci are either complicated or unreliable. The author recommends the following simple procedure:

A quantity of the cocci-infected material which can be taken up on two or three platinum loops is added to $\frac{1}{2}$ c.cm. of freshly obtained defibrinated blood and one loop of this mixture is spread out upon a warm sterile slide. The visible cocci sometimes soon disappear or do not show any growth until after from four to eight hours. In such cases the bacteria are not virulent. If a growth is noticed within the first three hours, the virulence of the cocci is high and the prognosis is poor.

In 111 cases of gynecological and obstetrical conditions in which a vaginal smear was tested by the author in this manner the method failed only twice.

WOHLGEMUTH (Z).

DUCTLESS GLANDS

Clark, A. J.: The Experimental Basis of Endocrine Therapy. *Brit. M. J.*, 1923, ii, 51.

Endocrine therapy may be divided into substitution therapy and the use of tissue extracts as pharmacological agents. Examples of the latter are pituitary

tary extract and adrenalin. In the matter of substitution therapy the conditions laid down by Gley for the determination of the secretion of an organ have been found too severe. The author suggests the following criteria for substitution therapy:

1. The destruction of the gland must produce a characteristic syndrome.
2. The administration of an extract of the organ must relieve the symptoms.
3. It must be possible to identify and measure the extract by pharmacological tests.

The production of the active extract of an endocrine gland may fail, however, because the gland may act only as a detoxifier or secrete its extract as rapidly as it is formed, leaving none stored within it, or because the active principle may be so labile that it cannot be isolated. Under such circumstances the grafting of a gland may relieve the symptoms when the administration of the gland extract gives no results.

There are nine glands whose deficiency produces characteristic symptoms, namely, the thyroid, the parathyroid, the islet tissue of the pancreas, the testicles, the ovaries, the suprarenal cortex and medulla, and the anterior and posterior lobe of the pituitary gland. In the case of the thyroid gland the evidence is fairly complete; deficiency can be relieved by the administration of the extract and the latter can be identified as to formula and activity. This is true also of the extract of the islet tissue of the pancreas, but in the case of the other glands there is no evidence to show that the administration of the organ extract relieves the deficiency. However, the active extracts of the pituitary and the suprarenal and, to a less extent, that of the parathyroid glands may be used as therapeutic agents in cases other than deficiency conditions which have nothing to do with substitution therapy. The inadequacy of the oral administration of the pluriglandular extracts is obvious as only a few of them have a definitely known action or can be assimilated from the intestinal tract.

WILLIAM J. PICKETT, M.D.

EXPERIMENTAL SURGERY

Haas, S. L.: A Study of the Viability of Bone After Removal from the Body. *Arch. Surg.*, 1923, vii, 213.

The author reports a series of twenty experiments on ten dogs. The method used was as follows:

Under ether anæsthesia and with aseptic technique, two entire metacarpal bones were removed from the animal's foot. One bone, after being fractured in the center, was placed in a sterile bottle and

kept at room temperature, while the other, after being broken, was placed in a bottle of physiological sodium chloride solution and kept at a temperature of 39 degrees C. At the end of periods varying from two and one-half to twenty-four hours the fragments were united with catgut and the two sets of bones buried in the muscles on opposite sides of the back of the same animal. The fragments were left in the muscle from forty-four to sixty-one days.

An effort was made to determine the vitality of the cells after exposure to such conditions as are present in the operating room. In ten of the twenty experiments the period of observation was less than fifteen days because the animal died. These experiments were therefore unsatisfactory so far as conclusions regarding the ultimate results are concerned. The high mortality of 50 per cent as compared with the mortality of 10 per cent which is usually associated with transplantation experiments suggests that the character of the experiments was responsible for the poor results. The chance of infection is, of course, greater when the bone is allowed to remain outside the body for a considerable period of time before transplantation. It is possible also that in the presence of at least partially degenerated bone the virulence of the bacteria was increased and that the changed protein of the exposed bone exerted a toxic action after the bone was replaced in the animal.

There were two experiments in which union occurred, three in which callus was formed about the fractured ends, and two in which signs of living bone were noted on histologic examination. The results did not appear to be any better when physiological sodium chloride solution at 39 degrees C. was used than when the bones were placed in a sterile bottle at room temperature. The longest period during which signs of living bone were demonstrated was nineteen hours for both methods.

The author's conclusions are as follows:

1. The osteoblastic cells of bone will survive an exposure period of nineteen hours in air at room temperature.
2. There is sufficient active retained vitality in the exposed cells to form callus, and in some instances for union of the fractured bone after its transplantation into a muscle of the same animal, independent of any other source of osseous elements.
3. The demonstration of the survival of the cells of bone after removal from the host adds uncontrollable evidence that the osteoblastic cells of a bone graft play an independent active rôle in the processes of regeneration.

CARL D. NEIDHOLD, M.D.

BIBLIOGRAPHY of CURRENT LITERATURE

NOTE.—THE BOLD FACE FIGURES IN BRACKETS AT THE RIGHT OF A REFERENCE INDICATE THE PAGE OF THIS ISSUE ON WHICH AN ABSTRACT OF THE ARTICLE REFERRED TO MAY BE FOUND.

SURGERY OF THE HEAD AND NECK

Head

Traumatic lesions of the head. T. A. SHALLOW. *Ann. Surg.*, 1923, lxxviii, 26.

Intermittent blindness after skull injury. C. A. HEGNER. *Muenchen. med. Wchnschr.*, 1923, lxx, 502.

Chronic retention of parotid saliva—repeated parotitis. G. LECLERC. *Presse méd.*, Par., 1923, xxxi, 595.

Pyogenic infection of the parotid glands and ducts. V. P. BLAIR and E. C. PADGETT. *Arch. Surg.*, 1923, vii, 1.

[427]

Combination of X-ray and radium therapy in the treatment of superficial malignancies of the face. S. D. NEELY. *J. Oklahoma State M. Ass.*, 1923, xvi, 212.

Malignant disease of the upper jaw: with special reference to operative technique. E. M. WOODMAN. *Brit. J. Surg.*, 1923, xi, 153.

[428]

Mandibular cysts of dental origin. P. G. BORTOLUCCI. *Riforma med.*, 1923, xxxix, 656.

The wiring method of treatment for fractures of the mandible. E. H. TENNENT. *U. S. Naval M. Bull.*, 1923, xix, 38.

Complete necrosis of the lower jaw and extrusion through the skin. P. SEBILEAU. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 943.

The rebuilding of the alveolar processes by bone transplantation. Z. HEGEDUES. *Dental Cosmos*, 1923, lxxv, 736.

[429]

Eye

Neurotic disturbances of eye function. L. K. LUNT and A. F. RIGGS. *Arch. Ophth.*, 1923, lii, 313.

An account of an experiment on visual after-sensation in reference to illumination in coal mines carried out by the National Institute of Industrial Psychology. E. FARMER. *Brit. J. Ophth.*, 1923, vii, 328.

The cause and prevention of myopia. F. W. EDRIDGE-GREEN. *Med. Press*, 1923, n.s. cxvi, 8.

The method of "coincidences" and the significance of bilateral diplopia. M. MARQUEZ. *Prog. de la clin.*, Madrid, 1923, xxv, 589.

A case of exophthalmos probably caused by non-suppurative cavernous sinus thrombosis. F. P. WEBER. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Clin. Sect., 41.

[429]

A new operation for ptosis. J. R. PHELAN. *Med. Herald*, 1923, clii, 194.

Unilateral hysterical blepharospasm cured by suggestion. M. M. AMAT. *Siglo méd.*, 1923, lxx, 656.

A further note on blepharochalasis. J. S. FRIEDENWALD. *Arch. Ophth.*, 1923, lii, 367.

Chalaziotome for removal of meibomian cyst. J. M. THORNTON. *Am. J. Ophth.*, 1923, 3 s. vi, 584.

A painless chalazion operation. W. T. DAVIS. *Am. J. Ophth.*, 1923, 3 s. vi, 583.

The treatment of congenital dacryocystitis. L. W. CRIGLER. *J. Am. M. Ass.*, 1923, lxxxi, 23.

Purulent and amicrobic pseudomembranous conjunctivitis. GALINDEZ. *Med. Ibera*, 1923, vii, 579.

Vaccine treatment of vernal conjunctivitis. J. F. TOWNSEND. *South. M. J.*, 1923, xvi, 555.

The nourishment of the corneal epithelium. C. F. CHARLTON. *Am. J. Ophth.*, 1923, 3 s. vi, 556.

Two cases of primary band-shaped opacity of both corneae. A. C. HUDSON. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Ophth., 31.

Complete bilateral idiopathic keratitis. H. DE GOUVÊA. *Brazil-med.*, 1923, xxxvii, 1.

Methylene blue as a stain for ulcers and abrasions of the cornea. A. G. FORT and W. J. KNAUER. *J. Am. M. Ass.*, 1923, lxxxi, 299.

The effects of drugs upon regeneration of the corneal epithelium. L. POST. *Am. J. Ophth.*, 1923, 3 s. vi, 559.

A case of iritis and one of corneal ulcer cured by tonsillectomy. R. M. NELSON. *J. Am. M. Ass.*, 1923, lxxxi, 211.

Pseudo-glioma, vascular tunic of the lens. S. R. GIFFORD and J. S. LATTI. *Am. J. Ophth.*, 1923, 3 s. vi, 565. [430]

Lens injury without resulting cataract. C. L. LARUE. *Am. J. Ophth.*, 1923, 3 s. vi, 582.

Cataract of both eyes and with convergent strabismus of the right of congenital origin. M. M. AMAT. *Siglo méd.*, 1923, lxx, 623.

Complete congenital cataract, bilateral. W. E. SCARBOROUGH. *Am. J. Ophth.*, 1923, 3 s. vi, 582.

A series of 100 cases of cataract removed under a subconjunctival bridge. C. KILLICK. *Brit. J. Ophth.*, 1923, vii, 320.

The treatment of prolapse of the iris following cataract extraction. H. F. HANSELL. *Am. J. Ophth.*, 1923, 3 s. vi, 580.

A case of subhyaloid hæmorrhage in a girl. M. S. MAYOU. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Ophth., 31.

The embryology of Tenon's capsule. I. GOLDSTEIN. *Arch. Ophth.*, 1923, lii, 327.

Serous tenonitis complicated by bilateral papilloedema. G. N. BRAZEAU. *Arch. Ophth.*, 1923, lii, 355.

Orbital cellulitis as related to nasal sinusitis. R. RIBAS VALERO. *Rev. méd. d. Sevilla*, 1923, xlii, 1. [430]

Endothelioma of the orbit. F. A. WILLIAMSON-NOBLE. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Ophth., 35.

Neuroretinitis resembling retinitis pigmentosa due to congenital syphilis. A. C. LEWIS. *Am. J. Ophth.*, 1923, 3 s. vi, 585.

Familial retino-cerebral degeneration. W. H. NARDIN and R. S. CUNNINGHAM. *Am. J. Ophth.*, 1923, 3 s. vi, 476. [430]

Atrophic patches at the macula; tuberculous cyst? F. A. WILLIAMSON-NOBLE. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Ophth., 32.

- Binocular choroidal tuberculosis with detachment of the retina in two kittens. J. B. LAWFORD and H. NEAME. *Brit. J. Ophthalmol.*, 1923, vii, 305.
- Papillitis with focal infection. L. F. APPLEMAN. *Am. J. Ophthalmol.*, 1923, 3 s. vi, 563. [431]
- Opaque nerve fibers. M. L. LERNER. *Am. J. Ophthalmol.*, 1923, 3 s. vi, 571.
- Diseases of the optic nerve and its relations to the posterior nasal sinuses: report of four cases showing the uncertainty of the diagnosis. C. W. CUTLER. *Arch. Ophthalmol.*, 1923, lii, 331. [431]
- Optic neuritis of sphenoidal sinus origin; operation; cure. ST. C. THOMSON. *Brit. M. J.*, 1923, i, 925. [431]
- Tumors of the optic nerve. H. NEAME. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Ophthalmol., 34.
- Concerning the surgical treatment of glaucoma, with special reference to a modified Elliot-La Grange technique. D. T. VAIL. *Arch. Ophthalmol.*, 1923, lii, 346. [431]
- The physiological effects of radiant energy, especially upon the human eye. C. SHEARD. *N. York State J. M.*, 1923, xxiii, 292.
- Ophthalmic aspects of focal infection. J. N. EVANS. *Med. Times*, 1923, li, 157.
- The pathogenesis of the ocular lesions produced by a deficiency of Vitamine A. A. M. YUDKIN and R. A. LAMBERT. *J. Exper. Med.*, 1923, xxxviii, 17.
- Changes in the paro-ocular glands accompanying the ocular lesions which result from a deficiency of Vitamine A. R. A. LAMBERT and A. M. YUDKIN. *J. Exper. Med.*, 1923, xxxviii, 25.
- Herpes zoster ophthalmicus. S. LODGE and W. O. LODGE. *Brit. M. J.*, 1923, i, 1084. [431]
- Optic atrophy after herpes ophthalmicus. L. PATON. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Ophthalmol., 27.
- Lupus vulgaris with ocular extension. W. S. FRANKLIN and F. C. CORDES. *Am. J. Ophthalmol.*, 1923, 3 s. vi, 573. [432]
- Cases of ophthalmological interest from the postmortem records of St. George's Hospital, London, 1841-1921. *Brit. J. Ophthalmol.*, 1923, vii, 313.

Ear

- Foundations of otology: the work of Flourens. W. J. C. NOURSE. *J. Laryngol. & Otol.*, 1923, xxxviii, 354.
- A mixed tumor of the auricle. V. TANTURRI. *Actinoterapia*, 1923, iii, 167.
- A case of total deafness and aphonia following severe shock. R. FRANCIS. *Med. J. Australia*, 1923, ii, 10.
- A case of complete deafness dating from a fall. J. DUNDAS-GRANT. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Otol., 47.
- A case of deafness greatly increased after a fall. J. DUNDAS-GRANT. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Otol., 48.
- A case of long-standing deafness attributable to falls on the head; improvement. J. DUNDAS-GRANT. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Otol., 49.
- A new and simple method of detecting feigned unilateral deafness. W. A. WELLS. *J. Am. M. Ass.*, 1923, lxxxi, 190.
- Osteitis deformans and otosclerosis. G. J. JENKINS. *J. Laryngol. & Otol.*, 1923, xxxviii, 344.
- Suction in the treatment of septic ears. W. STUART-LOW. *Brit. M. J.*, 1923, ii, 62.
- Otitis media complicating operations on the gasserian ganglion. H. R. LYONS. *Ann. Otol., Rhinol. & Laryngol.*, 1923, xxxii, 457.
- Otitis media, mastoiditis, and diseases of the nasal accessory sinuses as causative factors in malnutrition in children. T. H. ODENEAL. *Ann. Otol., Rhinol. & Laryngol.*, 1923, xxxii, 561. [432]

- The treatment of acute otitis media in children. T. B. LAYTON. *Brit. J. Child. Dis.*, 1923, xx, 65. [432]
- Otitis media and mastoiditis treated by radiant light and heat from electric lights. F. T. WOODBURY. *N. York M. J. & Med. Rec.*, 1923, cxviii, 49.
- Myringotomy from the standpoint of the pathology of early otitis media. A. M. ALDEN. *J. Missouri State M. Ass.*, 1923, xx, 169. [432]
- Mastoidectomy, with special reference to closure of the wound. S. S. WATKINS. *Kentucky M. J.*, 1923, xxi, 347.

Nose

- Depressed nasal deformities: a comparison of the prosthetic values of paraffin, bone, cartilage, and celluloid, with a report of cases corrected with celluloid implants by the author's method. J. D. LEWIS. *Ann. Otol., Rhinol. & Laryngol.*, 1923, xxxii, 321. [433]
- The treatment of nasal polypi. J. G. WARE. *Am. J. Roentgenol.*, 1923, x, 579.
- Obstruction of the nasal passages, with special reference to the upper regions. H. W. IVINS. *J. Iowa State M. Soc.*, 1923, xiii, 272.
- Headaches of sinus origin. E. D. ALLGAIER. *Ohio State M. J.*, 1923, xix, 503. [433]
- Mucocoele of the frontal sinus. ST. C. THOMSON and C. H. M'ILRAITH. *J. Laryngol. & Otol.*, 1923, xxxviii, 365. [433]
- A radical frontal sinus operation. W. G. HOWARTH. *J. Laryngol. & Otol.*, 1923, xxxviii, 341. [434]
- Sarcoma of the ethmoid. A. R. MACKENZIE and E. D. WELLS. *J. Am. M. Ass.*, 1923, lxxxi, 102. [434]
- Some further observations on the etiology and treatment of maxillary sinusitis. H. V. DUTROW. *Ann. Otol., Rhinol. & Laryngol.*, 1923, xxxii, 398. [434]
- Conservatism in nasal surgery. W. W. POTTER. *South. M. J.*, 1923, xvi, 560.

Mouth

- The surgery of harelip and cleft-palate deformities. J. W. GIBBON. *South. M. & S.*, 1923, lxxv, 355.
- Cleft palate. V. MEAU. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 838.
- The technique of bandaging after cleft-palate operations. G. RANFT. *Zentralbl. f. Chir.*, 1923, l, 598.
- A case of primary ulcerative tuberculosis of the lip. R. RINALDI. *Policlin.*, Rome, 1923, xxx, sez. chir., 272.
- A sessile melanoma of the lip: a practical and histopathologic study. L. CEVARIO. *Rassegna internaz. di clin. e terap.*, 1923, iv, 337.
- Radium needles in cancer of the lip. G. ROCCHI. *Actinoterapia*, 1923, iii, 163.
- Focal infection of dental origin and principles governing its removal. W. L. SHEARER. *Nebraska State M. J.*, 1923, viii, 225.
- A case of multiple dentigerous cysts. J. H. MUMMERY. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Odont., 44.
- A case of multiple dentigerous cysts. B. GRELLIER. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Odont., 43.
- Status of unerupted, impacted and malposed teeth. J. L. ZEMSKY. *Internat. J. Orthodont., Oral Surg. & Radiography*, 1923, ix, 537.
- A histologic study of results obtained through instrumental treatment of pyorrhea. F. V. SIMONTON. *California State J. M.*, 1923, xxi, 283.
- A case of severe bismuth stomatitis. B. DE MEDINA. *Med. Ibera*, 1923, vii, 4.
- Water-cancer or gangrenous stomatitis. J. W. CATHCART. *Am. J. Roentgenol.*, 1923, x, 561.

A case of lingual goiter. K. URBAN. *Zentralbl. f. Chir.*, 1923, I, 701.

Glossodynia with lingual tonsillitis as its etiology. G. SLUDER. *J. Am. M. Ass.*, 1923, lxxxI, 115.

Black tongue. H. PRINZ. *Dental Cosmos*, 1923, lxxv, 690.

An indurated ulcer on the tongue due to *oidium lactis*. L. WILKINS and S. BAYNE-JONES. *Am. J. Dis. Child.*, 1923, xxvi, 77.

Congenital sarcoma of the tongue. L. BACCARINI. *Ann. ital. di chir.*, 1923, ii, 495.

Carcinoma of the floor of the mouth. D. QUICK. *Am. J. Roentgenol.*, 1923, x, 461. [434]

Diathermy for malignant disease of the mouth, pharynx, and nose, with notes on seventeen successful cases. N. PATTERSON. *Brit. M. J.*, 1923, ii, 56. [435]

Throat

Unhealthy tonsils associated with cervical adenitis. W. G. HOWARTH and S. R. GLOYNE. *Lancet*, 1923, cciv, 1202. [435]

Indications and technique of tonsillectomy. A. MOULONGUET. *Presse méd., Par.*, 1923, xxxi, 593.

Complete tonsillectomy. R. NEBINGER. *Atlantic M. J.*, 1923, xxvi, 672.

Involvement of the nervous system in malignant disease of the nasopharynx. H. W. WOLTMAN. *Med. Clin. N. Am.*, 1923, vii, 309.

Lymphosarcoma of the tonsils with cervical metastases. W. S. SCHLEY. *Ann. Surg.*, 1923, lxxviii, 112.

A case of complete Jackson's syndrome. A. D. CIOPPA. *Rassegna internaz. di clin. e terap.*, 1923, iv, 273.

Hoarseness: the importance of early laryngoscopy. E. WATSON-WILLIAMS. *Bristol M.-Chir. J.*, 1923, xl, 153.

Late X-ray injuries of the larynx and suggestions for their prevention. O. JUENGLING. *Strahlentherapie*, 1923, xv, 18.

Neck

The nomenclature of diseased states caused by certain vestigial structures in the neck. J. E. FRAZER. *Brit. J. Surg.*, 1923, xi, 131.

Anatomico-surgical studies of the parathyroids: the prophylaxis of postoperative tetany. K. GRAMMANN. *Arch. f. klin. Chir.*, 1923, cxiv, 276.

Concerning thyroid form and function. E. GOLD and V. ORATOR. *Mitt. a. d. Grenzgeb. d. Med. u. Chir.*, 1923, xxxvi, 401.

Studies in thyroid disease. B. BREITNER. *Mitt. a. d. Grenzgeb. d. Med. u. Chir.*, 1923, xxxvi, 265.

A comparative study of the basal metabolism in normal men. F. G. HOBSON. *Quart. J. Med.*, 1923, xvi, 363.

A permissible breakfast prior to basal metabolism measurements. C. G. BENEDICT and F. G. BENEDICT. *Boston M. & S. J.*, 1923, clxxxviii, 849. [436]

Basal Metabolism; the value of its estimation. H. K. MOHLER. *Ann. Clin. Med.*, 1923, ii, 39.

Metabolic rate determinations in thyroid disease. A. SZENES and F. BIRCHER. *Schweiz. med. Wchnschr.*, 1923, liii, 263.

The Kottmann reaction for thyroid activity: carbon dioxide in the tested serum. S. MORSE and C. M. FITCH. *J. Lab. & Clin. Med.*, 1923, viii, 692.

Hyperthyroidism as related to other diseases. F. N. WALKER. *Canadian Pract.*, 1923, xlviii, 255.

Hypothyroidism—studies of the metabolism and growth, and effect of thyroid treatment. F. B. TALBOT. *Arch. Pediat.*, 1923, xl, 480.

The treatment of goiter with iodine and the mercury-vapor quartz light. LANGEMAK. *Deutsche Ztschr. f. Chir.*, 1923, clxxvii, 343.

The relation between thyrotoxicosis and tonsillar infection. L. E. BROWN. *Ann. Otol., Rhinol. & Laryngol.*, 1923, xxxii, 367. [436]

The indications for the surgical treatment and prophylaxis of goiter. B. BREITNER. *Wien. klin. Wchnschr.*, 1923, xxxvi, 213.

Surgical indications in goiter. R. C. AUSTIN. *Ohio State M. J.*, 1923, xix, 557.

The superiority of surgery over X-ray treatment of toxic goiter. A. G. BRENZER. *South. M. & S.*, 1923, lxxv, 376.

Surgery of the toxic thyroid. L. W. FRANK. *Kentucky M. J.*, 1923, xxi, 306. [437]

Observations on 192 consecutive days of the basal metabolism, food intake, pulse rate, and body weight in a patient with exophthalmic goiter. C. C. STURGIS. *Arch. Int. Med.*, 1923, xxxii, 50.

Exophthalmic goiter in childhood with some unusual manifestations. H. HEIMAN. *Arch. Pediat.*, 1923, xl, 493.

A case of Graves' (Parry-Graves-Basedow) disease in a woman aged 69, without goiter. E. STOLKIND. *Proc. Roy. Soc. Med., Lond.*, 1923, xvi, Clin. Sect., 44.

Cardiac disorders accompanying exophthalmic goiter. E. P. BOAS. *J. Am. M. Ass.*, 1923, lxxx, 1683. [437]

The heart in exophthalmic goiter and adenoma with hyperthyroidism, with a note on the pathology. F. A. WILLIUS, W. M. BOOTHBY, and L. B. WILSON. *Med. Clin. N. Am.*, 1923, vii, 189.

X-ray therapy in exophthalmic goiter. S. TOUSEY. *N. York M. J. & Med. Rec.*, 1923, cxviii, 41.

Roentgen injuries after radiation of the neck. E. KOENIG. *Muenchen. med. Wchnschr.*, 1923, lxx, 558.

Quilting the remaining lobe as an emergency procedure during thyroidectomy for exophthalmic goiter. H. G. SLOAN. *Surg., Gynec. & Obst.*, 1923, xxxvii, 88.

Local anæsthesia in thyroidectomy by Kulenkampff's method. C. SCHNUG. *Muenchen. med. Wchnschr.*, 1923, lxx, 501.

A technique of thyroidectomy. F. H. LAHEY. *Surg., Gynec. & Obst.*, 1923, xxxvi, 825. [437]

The influence of subtotal thyroidectomy upon the total metabolism. E. GRAFE and E. VON REDWITZ. *Mitt. a. d. Grenzgeb. d. Med. u. Chir.*, 1923, xxxvi, 215.

The end-results of surgery of the thyroid. J. DE J. PEMBERTON. *Arch. Surg.*, 1923, vii, 37.

A case of postoperative myxedema. E. BONILLA and C. B. SOLER. *Siglo méd.*, 1923, lxx, 669.

Acetonuria following thyroid operations. R. S. HUBBARD and C. W. WEBB. *Clifton Med. Bull., Clifton Springs, N. Y.*, 1923, ix, 85. [437]

SURGERY OF THE NERVOUS SYSTEM

Brain and Its Coverings; Cranial Nerves

Specific serum treatment of epidemic (lethargic) encephalitis: further results. E. C. ROSENOW. *J. Am. M. Ass.*, 1923, lxxx, 1583. [438]

Brain injuries: mechanics, prognosis, and treatment. E. BUTLER. *California State J. M.*, 1923, xxi, 295.

A depressed fracture over the angular gyrus: clinical and radiological localization. A. P. BERTWISTLE. *Brit. J. Surg.*, 1923, xi, 73.

Injuries to the head illustrating the functions of the cortex. R. G. GORDON. *Bristol M.-Chir. J.*, 1923, xl, 130.

A case of reflex cortical spasm after finger injury. B. BING. *Rev. suisse d. accid. du travail*, 1923, xvii, 73.

A case of cerebral cyst in an infant. H. G. JACOBI. *Am. J. Dis. Child.*, 1923, xxv, 435. [438]

A case of cerebral abscess in a child. J. P. PARKINSON and L. R. BROSTER. *Lancet*, 1923, cciv, 1107. [439]

Trauma as a possible cause of brain tumor. E. S. REYNOLDS. *Lancet*, 1923, ccv, 13.

A case of brain tumor with unusual clinical findings. M. FLEXNER. *Kentucky M. J.*, 1923, xxi, 368.

Intracranial tumor causing quadrant hemipia. R. FORD. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Ophth., 30.

A method for the localization of brain tumors in comatose patients: the determination of a communication between the cerebral ventricles and the estimation of their position and size without the injection of air (ventricular estimation). W. E. DANDY. *Surg., Gynec. & Obst.*, 1923, xxxvi, 641. [439]

The clinical value of encephalography. O. DAVID and G. GABRIEL. *Fortschr. a. d. Geb. d. Roentgenstrahlen*, 1923, xxx, 528.

The danger of lumbar encephalography in cases of cerebral tumors. W. DENK. *Zentralbl. f. Chir.*, 1923, l, 471.

The absorptive power of the subarachnoid space. T. HASHIMOTO. *Japan. Ztschr. f. Dermatol. u. Urol.*, 1922, xxii, 63. [441]

Hydrocephalus. C. E. LOCKE. *Bruxelles méd.*, 1923, iii, 476.

Cerebral pneumography as an aid in the early diagnosis of hydrocephalus. O. S. WYATT. *Minnesota Med.*, 1923, vi, 454.

Hydrocephalus secondary to cerebral glioma. J. M. MACERA. *Semana méd.*, 1923, xxx, 52.

Trephination of the cerebellum. P. MARTIN. *Arch. franco-belges de chir.*, 1923, xxvi, 557.

The function of the lobes of the hypophysis as indicated by replacement therapy with different portions of the ox gland. P. E. SMITH and I. P. SMITH. *Endocrinology*, 1923, vii, 579.

The "chiasm syndrome" in affections of the hypophysis. G. FUMAROLA. *Policlin.*, Rome, 1923, xxx, sez. prat., 807.

The classification and treatment of hypophyseal disorders. J. L. TIERNEY. *Endocrinology*, 1923, vii, 536.

Dyspituitarism and epilepsy. H. LISSER and C. E. NIXON. *Med. Clin. N. Am.*, 1923, vi, 1471. [441]

The frontal method of Schloffer-Duret without extenteration of the orbit: the possibility of relative exploration of the base of the brain. P. BASTIANELLI. *Arch. ital. di chir.*, 1923, vii, 140. [441]

Clinical studies of vestibular and auditory tests in intracranial surgery. W. P. EAGLETON. *Laryngoscope*, 1923, xxxiii, 483.

Post-traumatic meningitis or subdural hæmatoma? K. NATHER. *Wien. med. Wchnschr.*, 1923, lxxiii, 282.

Yeast meningitis. L. L. SHAPIRO and J. B. NEAL. *J. Am. M. Ass.*, 1923, lxxxi, 212.

Tuberculous meningitis simulating epidemic encephalitis. LÈON-KINDBERG and LERMOYEZ. *Bull. et mém. Soc. méd. d. hôp. de Par.*, 1923, 3s. xxxix, 838.

Tuberculous meningitis. D. PATERSON. *Practitioner*, 1923, cx, 431. [441]

Otitic meningitis. G. J. JENKINS. *J. Laryngol. & Otol.*, 1923, xxxviii, 304. [442]

The morbid anatomy and drainage of otitic meningitis. E. D. DAVIS. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Otol., 43.

A case of division of the posterior sensory root of the gasserian ganglion for trifacial neuralgia. M. D. MAGEE. *Virginia M. Month.*, 1923, l, 236.

A report of two cases of surgically treated acusticus tumor. T. AOYAMA. *Deutsche Ztschr. f. Chir.*, 1923, clxxviii, 76.

A case of acusticus tumor (right); operation by Sir Victor Horsley in 1912; removal of the tumor; recovery. F. J. CLEMINSON. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Otol., 31.

A specimen of brain and acusticus tumor. F. M. R. WALSHE. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Otol., 32.

Acusticus tumors. F. M. R. WALSHE. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Otol., 32.

The surgical treatment of eighth nerve tumors. W. TROTTER. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Otol., 37.

Glossopharyngeal neuralgia. J. B. DOYLE. *Med. Clin. N. Am.*, 1923, vii, 285.

Lesions affecting the vagus nerve. W. S. LEMON. *Med. Clin. N. Am.*, 1923, vii, 293.

A new and more accurate technique for injecting the superior maxillary division. S. L. SILVERMAN. *J. Am. M. Ass.*, 1923, lxxxi, 112.

Spinal Cord and Its Coverings

Operative treatment of a tumor of the cervical cord. J. ALKSNIS. *Deutsche Ztschr. f. Chir.*, 1923, clxxvii, 385.

A case of meningeal hæmorrhage of spinal origin. J. HUBER and J. DE MASSARY. *Bull. et mém. d. hôp. de Par.*, 1923, 3 s. xxxix, 916.

Anterior poliomyelitis and its treatment in the acute and the reparative stage. F. HAHN. *Muenchen. med. Wchnschr.*, 1923, lxx, 425.

A clinical consideration of spinal cord tumors. R. F. GALE. *South. M. & S.*, 1923, lxxxv, 351.

Is the retention of sensation over the sacral segments of value in the differential diagnosis between extra- and intra-medullary spinal cord lesions? W. KERPPOLA. *Acta med. Scand.*, 1923, lvii, 527. [443]

Priapism. C. MUELLER. *Beitr. z. klin. Chir.*, 1923, cxxviii, 670.

Peripheral Nerves

Some peripheral nerve problems. D. LEWIS. *Boston M. & S. J.*, 1923, clxxxviii, 975. [443]

Neuritis and perineuritis of the arm. J. S. RODMAN. *Ann. Surg.*, 1923, lxxviii, 89.

Late paralysis of the ulnar nerve. P. GUIBAL. *Arch. franco-belges de chir.*, 1923, xxvi, 207. [444]

The surgical treatment of sciatica. HEILE. *Deutsche Ztschr. f. Chir.*, 1922, clxxiv, 10. [445]

Sympathetic Nerves

Surgical relations of the sympathetic nervous system. G. P. MULLER. *Ann. Surg.*, 1923, lxxvii, 641. [445]

Observations on peri-arterial sympathectomy. J. PHILIPOWITZ. *Zentralbl. f. Chir.*, 1923, l, 829.

The treatment of peripheral X-ray ulcers by peri-arterial sympathectomy. GUNDERMANN. *Beitr. z. klin. Chir.*, 1923, cxxix, 231.

Peri-arterial sympathectomy in scleroderma. W. HORN. *Zentralbl. f. Chir.*, 1923, l, 831.

Resection of the sympathetic; collective review. R. RICCIO. *Rassegna internaz. di clin. e terap.*, 1923, iv, 243.

SURGERY OF THE CHEST

Chest Wall and Breast

- Chronic mastitis. G. KEYNES. *Brit. J. Surg.*, 1923, xi, 89. [447]
- Tumors of the breast. F. E. BUNTS. *Ohio State M. J.*, 1923, xix, 561.
- Tumors of the breast. C. E. BLACK. *Surg., Gynec. & Obst.*, 1923, xxxvii, 63.
- Cancer of the breast. L. D. BULKLEY. *Am. J. Clin. Med.*, 1923, xxx, 479.
- Carcinoma of the breast. J. W. PRICE. *Kentucky M. J.*, 1923, xxi, 357.
- Certain unusual features noted in a case of inoperable cancer of the breast treated by roentgen rays. A. U. DESJARDINS. *Med. Clin. N. Am.*, 1923, vii, 163.
- Deep roentgenotherapy in carcinoma of the breast. G. E. PFAHLER. *Am. J. Roentgenol.*, 1923, x, 566. [447]
- Results of postoperative irradiation of carcinoma of the breast. E. GNANT. *Fortschr. a. d. Geb. d. Roentgenstrahlen*, 1923, xxx, 326. [448]

Trachea, Lungs, and Pleura

- The diagnosis of laryngotracheal oesophageal conditions. S. IGLAUER. *Am. J. Roentgenol.*, 1923, x, 547.
- Pleural epilepsy. H. R. OWEN and A. GONZALES. *Ann. Surg.*, 1923, lxxviii, 6. [448]
- Acute bilateral suppurative pleurisy without symptoms. L. ANDRENELLI. *Riforma med.*, 1923, xxxix, 705.
- The treatment of pleural effusions with calcium chloride. F. IBARSOLA and A. D. SANTA MARINA. *Med. Ibera*, 1923, vii, 26.
- The treatment of interlobar pleurisy and pulmonary suppuration by therapeutic pneumothorax. J. TROISIER and R. GAYET. *Bull. et mém. Soc. méd. d. hôp. de Par.*, 1923, 3 s. xxxix, 867.
- The treatment of empyema in infants. L. PORTER and M. MORRIS. *Arch. Pediat.*, 1923, xl, 495.
- The obviation of chronicity in cases of post-pneumonic empyema. E. F. BUTLER. *Am. J. Surg.*, 1923, xxxvii, 176.
- The treatment of the chronic stage of empyema. H. LILIENTHAL. *Am. J. Surg.*, 1923, xxxvii, 178.
- The treatment of complete closed pneumothorax of one side by exclusion of the lung of the opposite side by a severe bronchitis or pneumonia. R. FELLER. *Zentralbl. f. Chir.*, 1923, l, 795.

- Lung compression by heavy liquid paraffin in the treatment of lung tuberculosis, bronchiectasis, and lung abscess. F. W. MCGUIRE. *Surg., Gynec. & Obst.*, 1923, xxxvii, 20. [448]
- The pneumothorax of Forlanini. S. CORINADLESI. *Policlin.*, Rome, 1923, xxx, sez. prat., 729.

- Obstruction of the needle in the treatment of pneumothorax by Forlanini's method. E. CURTI. *Policlin.*, Rome, 1923, xxx, sez. prat., 730.

The cauterization of adhesions in artificial pneumothorax treatment of pulmonary tuberculosis under thoracoscopic control. H. C. JACOBÆUS. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Electro-Therap., 45. [448]

The treatment of sterile echinococcus cysts of the lung. C. ANTONUCCI. *Policlin.*, Rome, 1923, xxx, sez. prat., 798.

Abscess of the lung. J. J. SINGER and E. A. GRAHAM. *J. Am. M. Ass.*, 1923, lxxxi, 193.

The surgical treatment of pulmonary tuberculosis. E. KUTSCHA-LISSBERG. *Wien. klin. Wchnschr.*, 1923, xxxvi, 379.

The clinical manifestations of primary cancer of the lung. W. W. G. MACLACHLAN. *Atlantic M. J.*, 1923, xxvi, 655.

The frequency and cause of primary carcinoma of the lung. P. HAMPELN. *Mitt. a. d. Grenzgeb. d. Med. u. Chir.*, 1923, xxxvi, 145. [449]

Heart and Pericardium

Cardiotomy and valvulotomy for mitral stenosis; experimental observations and clinical notes concerning an operated case with recovery. S. A. LEVINE and E. C. CUTLER. *Boston M. & S. J.*, 1923, clxxxviii, 1023. [450]

Tumor of the heart. D. VANNUCCI. *Sperimentale*, 1923, lxxvii, 33.

Symphysis of the pericardium: Bauer operation. GOSSET. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 918.

Oesophagus and Mediastinum

Anomalies of the oesophagus—with case report. T. D. KAS and H. L. AVERY. *J. Iowa State M. Soc.*, 1923, xiii, 275.

Observations on twenty-three cases of foreign bodies in the oesophagus and the bronchus. H. B. ORTON. *J. Med. Soc. N. Jersey*, 1923, xx, 240.

Stricture of the oesophagus following typhoid fever. P. P. VINSON. *Med. Clin. N. Am.*, 1923, vii, 57.

Artificial epithelization of the oesophagus; a suggestion for the treatment of strictures. A. NARATH. *Deutsche Ztschr. f. Chir.*, 1923, clxxxviii, 1.

Leiomyoma of the oesophagus. S. TSCHLENOW. *Arch. f. path. Anat.*, 1923, ccxlii, 239.

Transpleural oesophagocutaneous fistula. A. HAND and W. E. LEE. *Ann. Surg.*, 1923, lxxviii, 96.

Two cases of descending retro-oesophageal abscess with phlegmon of the neck and threatening mediastinitis: external operation through the vascular route; prophylactic collar mediastinotomy; recovery. O. GLOGAU. *Laryngoscope*, 1923, xxxiii, 290. [450]

Miscellaneous

Primary intrathoracic neoplasms. A. J. S. PINCHIN. *Practitioner*, 1923, cx, 422. [451]

SURGERY OF THE ABDOMEN

Abdominal Wall and Peritoneum

Investigations in the neurology of the abdominal wall. G. SOEDERBERGH. *Ztschr. f. d. ges. Neurol. u. Psychiat.*, 1923, lxxxi, 206.

Femoral hernia and the saccular theory. R. H. RUSSELL. *Brit. J. Surg.*, 1923, xi, 148.

Postoperative ventral hernia. J. C. MASSON. *Surg., Gynec. & Obst.*, 1923, xxxvii, 14.

Living sutures in the treatment of hernia. W. E. GALLIE and A. B. LEMESURIER. *Canadian M. Ass. J.*, 1923, xiii, 469. [452]

Observations on 2,468 hernia operations by one operator. J. P. HOGUET. *Surg., Gynec. & Obst.*, 1923, xxxvii, 71.

Experimental and clinical studies of peritonitis. L. SCHOENBAUER. *Wien. klin. Wchnschr.*, 1923, xxxvi, 373.

Tuberculous peritonitis. C. N. DOWD. *Ann. Surg.*, 1923, lxxvii, 632. [452]

Malignant intermittent adhesive peritonitis and its treatment by autogenous liquid fat. F. KEMPF. *Deutsche Ztschr. f. Chir.*, 1923, clxxviii, 402.

The treatment of general peritonitis. B. VON LUEKOE. *Zentralbl. f. Chir.*, 1923, I, 703.

The chemistry of pseudochylous ascites and other types of exudates. R. B. GIBSON and C. P. HOWARD. *Am. J. M. Sc.*, 1923, clxvi, 80.

Ether lavage; its logical use as an anti-aggressin. G. DE TARNOWSKY. *Surg., Gynec. & Obst.*, 1923, xxxvii, 76.

A case of myxoma of the mesentery. J. ALFREDO. *Arch. brasil. de med.*, 1923, xiii, 647.

A case of sarcoma of the ascending mesocolon. A. AVONI. *Arch. ital. di chir.*, 1923, vii, 360.

Sclerosis of the transverse mesocolon in duodenal ulcer. M. FRANCINI. *Policlin.*, Rome, 1923, xxx, sez. prat., 924.

A large sympathoma of the transverse mesocolon. J. HERTZ. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 977.

The rôle of spasticity in disease of the digestive tract: a case of visceral tetany causing acute cholangitis and pancreatitis. J. KAUFMANN. *Am. J. M. Sc.*, 1923, clxvi, 67.

Gastro-Intestinal Tract

The nervous mechanism of functional disorders of digestion, with special reference to hypertonic and hypotonic dyspepsia and nervous colitis. C. B. BLACKBURN. *Med. J. Australia*, 1923, i, 145. [452]

A clinical and radiologic study of gastric and intestinal ptosis. R. DE S. LOPEZ. *Brazil-med.*, 1923, xxxvii, 37.

Aberrant gastric mucosa; report of two cases—an umbilical polyp and a Meckel's diverticulum. E. STONE. *Surg., Gynec. & Obst.*, 1923, xxxvii, 51.

The effect of alkalis on gastric secretion and motility as measured by fractional gastric analysis. B. L. LOCKWOOD and H. G. CHAMBERLIN. *Arch. Int. Med.*, 1923, xxxii, 74.

The action of certain substances on the secretion of the gastric juice. T. HERNANDO. *Prog. de la clin.*, Madrid, 1923, xxv, 648.

Gastro-enterospasm as a manifestation of automatic imbalance in early infancy. P. J. WHITE. *Am. J. Dis. Child.*, 1923, xxvi, 91.

The diagnosis of gastric disease. M. E. REHFUSS. *Ann. Clin. Med.*, 1923, ii, 55.

Linitis plastica involving the stomach, ileum, colon, and rectum. C. ACHARD, J. MOUZON, and G. MARCHAL. *Bull. et mém. Soc. méd. d. hôp. de Par.*, 1923, 3 s. xxxix, 835.

A case of syphilis of the stomach. S. F. WEITZNER. *Am. J. Roentgenol.*, 1923, x, 537.

Gastric syphilis. R. E. LEONE. *Riforma med.*, 1923, xxxix, 625.

Secondary gastric phlegmon. A. BUSINCO. *Riforma med.*, 1923, xxxix, 577.

Non-carcinomatous gastric tumors. T. HUENERMANN. *Arch. f. klin. Chir.*, 1923, cxxiv, 258.

Primary lymphoblastoma of the stomach. S. RUFFIN. *Am. J. M. Sc.*, 1923, clxvi, 37.

A case of adenopapilloma of the stomach. I. S. INGBER. *Am. J. Roentgenol.*, 1923, x, 539.

The etiology, diagnosis, and treatment of gastric and duodenal hemorrhage. A. MUELLEDER. *Arch. f. klin. Chir.*, 1923, cxxiv, 60.

Gastric ulcers. L. G. COLE. *J. Am. M. Ass.*, 1923, lxxxii, 261. [453]

Gastric ulcer complicated by biloculation. DANTIN. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 851.

Gastric ulcers demonstrable by the X-ray and their treatment. J. BUESCHER. *Muenchen. med. Wchnschr.*, 1923, lxx, 559.

The location and multiplicity of gastric and duodenal ulcers, with conclusions as to the operative treatment. M. FRIEDEMANN. *Arch. f. klin. Chir.*, 1923, cxxiv, 178.

The medical treatment of peptic ulcer. P. K. BROWN. *California State J. M.*, 1923, xxi, 277.

Medical treatment of gastroduodenal ulcer, with especial reference to the use of a rice-water mixture. T. G. SCHNABEL. *Am. J. M. Sc.*, 1923, clxvi, 114.

Peptic ulcer and its surgical treatment. M. J. HENRY. *South. M. J.*, 1923, xvi, 537.

Perforation *in ulero* of a gastric ulcer. W. E. LEE and J. R. WELLS. *Ann. Surg.*, 1923, lxxviii, 36.

The treatment of perforated gastric ulcer. Perforated duodenopyloric ulcers. OUDARD and JEAN. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 381.

Resection of the stomach for ulcer; immediate feeding with the duodenal tube. H. FISCHER. *Ann. Surg.*, 1923, lxxvii, 773. [454]

Adenomatosis of the stomach and its relation to carcinoma. ROSENBAACH and DISQUÉ, JR. *Arch. f. klin. Chir.*, 1923, cxxiv, 28.

The pathogenesis of gastric cancer and its probable origin from congenital epithelial rests in the stomach wall. M. ASKANAZY. *Deutsche med. Wchnschr.*, 1923, xlix, 3, 49.

Contributions to the roentgen-ray diagnosis of carcinomatous ulcer. W. WAITZFELDER. *Fortschr. a. d. Geb. d. Roentgenstrahlen*, 1923, xxx, 291.

Modern viewpoints on gastro-intestinal surgery. A. M. CAMPBELL. *J. Michigan State M. Soc.*, 1923, xxii, 294.

Gastric surgery. W. J. HURLEY. *Illinois M. J.*, 1923, xlv, 31.

A new gastroduodenal technique. R. K. S. LIM and A. R. MATHESON. *Edinburgh M. J.*, 1923, n.s. xxx, 265.

The technique of gastrostomy. L. DEFONTAINE. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 925.

The effect of sodium chloride on the chemical changes in the blood of the dog after pyloric and intestinal obstruction. R. L. HADEN and T. G. ORR. *J. Exper. Med.*, 1923, xxxviii, 55.

Gastrojejunostomy, perforated gastric and duodenal ulcers; postoperative dietary; tooth brush. J. O'CONOR. *Med. Press*, 1923, n.s. cxvi, 9.

Preventive vaccination for pulmonary complications in operations on the stomach. O. LAMBERT. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 926.

Diverticula of the alimentary canal as demonstrated by X-ray examination. A. E. WALLEY. *Canadian M. Ass. J.*, 1923, xiii, 511.

Traumatic lesions of the intestine caused by non-penetrating blunt force. B. M. VANCE. *Arch. Surg.*, 1923, vii, 197.

Non-specific granulomata of the intestine. E. MOSCHCOWITZ and A. O. WILENSKY. *Am. J. M. Sc.*, 1923, clxvi, 48.

Hæmangioma of the intestine. F. HELVESTINE, JR. *Ann. Surg.*, 1923, lxxviii, 42.

Lipomata of the intestine. C. VACCARI. *Arch. ital. di chir.*, 1923, vi, 589. [454]

Upper intestinal tract obstruction. R. L. HADEN and T. G. ORR. *J. Missouri State M. Ass.*, 1923, xx, 185. [455]

Subacute intussusception of the intestine caused by an inflammatory tumor; resection; lateral anastomosis; recovery. DESPLAS. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 921.

Intestinal intussusception: thirteen cases of acute intestinal intussusception in infants. LÉPOUTRE and MOUCHET. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 387. [455]

Retrograde intussusception of the small intestine after gastro-enterostomy. H. DRUMMOND. *Brit. J. Surg.*, 1923, xi, 79.

Two unusual cases of intestinal intussusception. H. L. BUSCH. *Beitr. z. klin. Chir.*, 1923, cxxviii, 660.

Hysteric-spastic ileus. K. WOHLGEMUTH. *Zentralbl. f. Chir.*, 1923, l, 594.

A new method of registering intestinal movements in stenosis. F. PENTIMALLI. *Sperimentale*, 1923, lxxvii, 47.

Gas insufflation in a case of intestinal occlusion. C. CATTERUCCIA. *Policlin.*, Rome, 1923, xxx, sez. prat., 929.

The cause of death in intestinal obstruction. S. PRINGLE. *Lancet*, 1923, ccv, 62.

Unilateral intestinal exclusion. G. E. MUENNICH. *Surg., Gynec. & Obst.*, 1923, xxxvi, 773. [456]

Complete stenosis of the intestine for unilateral or bilateral exclusion by the crushing method. SOULIGOUX. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 914.

Crushing in intestinal surgery. GOSSET. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 924.

An intestinal loop adherent to a caesarean scar. S. MARINACCI. *Policlin.*, Rome, 1923, xxx, sez. prat., 921.

Clinical contribution to the study of foreign bodies in the duodenum. M. MAIRANO. *Arch. ital. di chir.*, 1923, vii, 502.

Two cases of opening of the duodenum to extract safety pins in infants. L. OMBRÉDANNE. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 990.

Some observations on duodenal alimentation. J. FRIEDENWALD and P. F. WIEST. *N. York M. J. & Med. Rec.*, 1923, cxvii, 655. [456]

Duodenal motility. H. WHEELON. *N. York M. J. & Med. Rec.*, 1923, cxvii, 652. [457]

Diverticulum of the duodenum. N. J. MACLEAN. *Surg., Gynec. & Obst.*, 1923, xxxvii, 6.

X-ray diagnosis of duodenal diverticula, with special reference to their etiology. W. BAENSCH. *Fortschr. a. d. Geb. d. Roentgenstrahlen*, 1923, xxx, 322.

Intermittent duodenal obstruction in children. H. O. FOUCAR. *Med. Clin. N. Am.*, 1923, vii, 81.

Pyloric and duodenal obstruction due to gall-stones and their surgical treatment. F. PAPIN. *J. de méd. de Bordeaux*, 1923, xcv, 75.

The flow of lymph from the ileocaecal angle and its possible bearing on the cause of duodenal and gastric ulcer. L. R. BRAITHWAITE. *Brit. J. Surg.*, 1923, xi, 7. [457]

The roentgen diagnosis of duodenal ulcer with the help of the direct symptoms. M. HADEK. *Mitt. a. d. Grenzgeb. d. Med. u. Chir.*, 1923, supp. iv, 50.

The recognition of duodenal ulcer with the X-ray. H. H. BERG. *Klin. Wchnschr.*, 1923, ii, 675.

Eight cases of perforated duodenogastric ulcer. GIRODE and DELBET. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 542. [458]

Cicatrization in duodenal peptic ulcer. A. J. WELL. *Arch. f. path. Anat.*, 1923, ccxli, 136. [458]

When should one operate for duodenal ulcer? S. CARRO. *Siglo méd.*, 1923, lxx, 573.

The surgical treatment of duodenal ulcer. J. HOHLBAUM. *Mitt. a. d. Grenzgeb. d. Med. u. Chir.*, 1923, supp. iv, 35.

False diverticula of the jejunum. F. HELVESTINE. *Surg., Gynec. & Obst.*, 1923, xxxvii, 1.

A case of jejunal diverticula. L. R. BRAITHWAITE. *Brit. J. Surg.*, 1923, xi, 184.

Primary ulcer of the jejunum. H. FISCHER. *Ann. Surg.*, 1923, lxxvii, 775. [458]

Repeated resection of a gastric anastomosis and the transverse colon because of peptic ulcer of the jejunum. W. DENK. *Zentralbl. f. Chir.*, 1923, l, 466.

Intestinal obstruction from stenosis of the jejuno-ileum secondary to hernial strangulation. GRUGET. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 891.

Intestinal obstruction from stenosis of the jejuno-ileum secondary to an annular epithelioma; perforation and the formation of a mesenteric abscess. GRUGET. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 894.

Ileo-recto-vesical fistula, probably of luetic origin. E. G. BALLENGER and W. R. SMITH. *South. M. J.*, 1923, xvi, 532.

Kinking of the lowest loops of the ileum. ALAPY. *Arch. f. klin. Chir.*, 1923, cxxi, 304.

Meckel's diverticulum and intestinal obstruction. H. L. FOSS. *J. Am. M. Ass.*, 1923, lxxxi, 99.

Acute intestinal obstruction caused by Meckel's diverticulum. J. S. RODMAN. *Ann. Surg.*, 1923, lxxviii, 92.

A review of six cases of Meckel's diverticulum with reference to caution in resections. R. M. HARBIN. *South. M. J.*, 1923, xvi, 534.

Perforation of a Meckel's diverticulum: operation: recovery. D. DREW. *Brit. J. Surg.*, 1923, xi, 190.

Congenital ileocaecal cysts. H. F. MACAULEY. *Brit. J. Surg.*, 1923, xi, 122.

Chronic ileo-caeco-colic intussusception. M. VALENTINI. *Rassegna internaz. di clin. e terap.*, 1923, iv, 287.

Surgical diseases caused by ascaris. O. HUEZELER. *Deutsche Ztschr. f. Chir.*, 1923, clxxviii, 393.

The peristaltic gurgle in cases of obscure malignancy. L. N. BOSTON and S. W. BECKER. *Med. Times*, 1923, li, 172.

Radiologic examination of the intestine three and one-half years after total colectomy. P. DUVAL. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 948.

A case of megasigmoid. V. VIDAL. *Policlin.*, Rome, 1923, xxx, sez. prat., 891.

Hirschsprung's disease: partial relief following plication of the sigmoid flexure. W. G. SPENCER. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Clin. Sect., 31.

A form of polypoid colitis as a late stage of amœbic dysentery: report of a case. L. E. HINES. *J. Am. M. Ass.*, 1923, lxxxi, 12.

Chronic ulcerative colitis in childhood. H. F. HELMHOLZ. *Arch. Pediat.*, 1923, xli, 454.

Three cases of chronic ulcerative colitis cured by iodine. A. H. LOGAN. *Med. Clin. N. Am.*, 1923, vii, 105.

Duodenal enzymes in chronic ulcerative colitis. P. W. BROWN. *Med. Clin. N. Am.*, 1923, vii, 97.

Infectious colitis. H. F. HEWES. *Boston M. & S. J.*, 1923, clxxxviii, 994. [459]

The surgical treatment of ulcerative colitis. D. F. JONES. *Boston M. & S. J.*, 1923, clxxxviii, 999. [459]

Colon anastomosis in ileocaecal invagination. A. GOTTESLEBEN. *Zentralbl. f. Chir.*, 1923, l, 438. [459]

Volvulus of the caecum. H. BEEGER. *Deutsche Ztschr. f. Chir.*, 1923, clxxvii, 240.

Involvement of the lymph glands in cancer of the caecum. W. M. CRAIG and W. C. MACCARTY. *Ann. Surg.*, 1923, lxxvii, 698. [459]

A case of typhoid simulating acute appendicitis. F. DE GRONCOLI. *Riforma med.*, 1923, xxxix, 559.

The skin signs or viscerosensory phenomena in acute appendicitis. E. M. LIVINGSTON. *Arch. Surg.*, 1923, vii, 83.

Grippe and appendicitis. M. GIOSEFFI. *Riforma med.*, 1923, xxxix, 561.

Acute appendicitis with lobar pneumonia. A. PRYDE. *Med. J. Australia*, 1923, ii, 38.

Associated acute thoracic and abdominal disease: with report of a case of pneumonia and appendicitis at the same time. S. R. ROBERTS. *Am. J. M. Sc.*, 1923, clxvi, 31.

Appendicitis complicated by septic portal thrombosis. W. W. FARMER. *Med. J. Australia*, 1923, ii, 8.

An unusual cause of death in acute appendicitis. C. H. WHITEFORD. *Brit. J. Surg.*, 1923, xi, 189.

Subhepatic abscess secondary to appendicitis. P. W. ASCHNER. *N. York M. J. & Med. Rec.*, 1923, cxvii, 679. [460]

A case of malignant carcinoid of the appendix. W. GUEBITZ. *Arch. f. path. Anat.*, 1923, ccxlii, 265.

Acute sigmoiditis: perforation and general peritonitis following rectal injection. C. MACDONALD. *Med. J. Australia*, 1923, ii, 10.

Iliac anus. ALGLAVE. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 1004.

Left iliac anus formed by Lambret's procedure. COMBIER and MURARD. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 898.

The importance of proctoscopic examination. L. A. BUE. *Med. Clin. N. Am.*, 1923, vii, 113.

The operative treatment of prolapse of the rectum. H. FINSTERER. *Arch. f. klin. Chir.*, 1923, ccxiii, 124.

Rectopexy by Kuemmel's method. D. FRANK. *Beitr. z. klin. Chir.*, 1923, ccxix, 186.

A new method of treating ischiorectal and other abscesses. J. P. LOCKHART-MUMMERY. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Surg., 65. [461]

Situs inversus and a recto-urethral communication with atresia of the rectum. G. B. GRUBER and M. REISINGER. *Ztschr. f. urol. Chir.*, 1923, xiii, 73.

Cancer of the rectum; the formation of an artificial anus by Lambret's procedure. PROUST and HOUDARD. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 840.

The technique of perineal amputation of the rectum. K. NATHER. *Zentralbl. f. Chir.*, 1923, l, 804.

A simple method of forming an artificial anus in cancer of the rectum. V. PAUCHET. *Riforma med.*, 1923, xxxix, 634.

A sphincter substitute for an artificial anus. R. HAECKER. *Zentralbl. f. Chir.*, 1923, l, 827.

An operation for hæmorrhoids. K. W. MONSARRAT. *Brit. J. Surg.*, 1923, xi, 77.

Tuberculosis of the anus and rectum. C. J. DRUECK. *Am. Med.*, 1923, xxix, 521.

Liver, Gall-Bladder, Pancreas, and Spleen

The collateral circulation in the portal system. F. WALCKER. *Arch. f. klin. Chir.*, 1922, cxx, 818. [461]

The treatment of hepatoptosis by suspension of the liver and plication of the abdominal wall. KAISER. *Arch. f. klin. Chir.*, 1922, cxxi, 307.

Observations upon the pheno-tetrachlorphthalein test for liver function. C. C. HIGGINS. *Ann. Clin. Med.*, 1923, ii, 30.

The urohæmolytic coefficient in hepatic disease. L. SCALAS. *Policlin.*, Rome, 1923, xxx, sez. prat., 857.

Hepatic amœbic abscess cured by emetine. TORRES and LOPEZ. *Prog. de la clin.*, Madrid, 1923, xxv, 728.

Atrophy of the liver with nodular hyperplasia. E. H. POOL and F. W. BANCROFT. *Surg., Gynec. & Obst.*, 1923, xxxvii, 44.

Tumor of the liver; resection; recovery. SILHOL. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 936.

A case in which an adenoma weighing 2 lb., 3 oz. was successfully removed from the liver: with remarks on the subject of partial hepatectomy. G. G. TURNER. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Surg., 43. [461]

Primary carcinoma of the liver excised by operation. G. WRIGHT. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Surg., 56. [461]

A case of resection of the liver for malignant disease spreading from the gall-bladder. C. FRANKAU. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Surg., 59. [461]

A case of excision of an adenoma of the liver which had ruptured spontaneously, causing internal hæmorrhage. P. TURNER. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Surg., 60. [461]

A case of primary tumor of the liver removed by operation. F. KIDD. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Surg., 61. [461]

Primary carcinoma of the liver; report of one case. J. A. KASPER. *Kentucky M. J.*, 1923, xxi, 349.

Biliary lymphangitis. W. H. FISHER. *Ohio State M. J.*, 1923, xix, 400. [462]

The X-ray diagnosis of gall-bladder disease. A. W. GEORGE. *Arch. Radiol. & Electrotherapy*, 1923, xxviii, 33.

A few points regarding the diagnosis and treatment of gall-bladder lesions. M. EINHORN. *N. York M. J. & Med. Rec.*, 1923, cxvii, 649. [463]

Demonstration of a choledochoscope. BAKES. 47 *Versamml. d. deutsch. Gesellsch. f. Chir.*, 1923.

Secondary signs of gall-bladder pathology. R. D. LEONARD. *Am. J. Roentgenol.*, 1923, x, 521. [463]

The selection of cases which may be benefited by intermittent or continuous medical drainage of the gall tract, with a brief discussion of methods. B. B. V. LYON. *Internat. J. Surg.*, 1923, xxxvi, 285.

The pathologic anatomy of gall-stone disease. ASCHOFF. 47 *Versamml. d. deutsch. Gesellsch. f. Chir.*, 1923.

Hydrops of the gall-bladder. ZIPPER. 47 *Versamml. d. deutsch. Gesellsch. f. Chir.*, 1923.

Jaundice in surgical cholecystitis without stones. H. R. HARTMAN. *Med. Clin. N. Am.*, 1923, vii, 89.

Failure of ligation of the cystic duct. A. H. HOFMANN. *Zentralbl. f. Chir.*, 1923, l, 220. [463]

Gall-stone disease. G. SINGER. Berlin: Urban & Schwarzenberg, 1923.

Thoughts concerning gall-stones; cholecystostomy vs. cholecystectomy. A. W. HAMMER. *Med. Times*, 1923, li, 170.

Recurrences after gall-stone operations. H. FLOERCKEN. *Muenchen. med. Wchnschr.*, 1923, lxx, 498.

Primary cancer of the gall-bladder of epidermal structure. G. CECCARELLI. *Arch. ital. di chir.*, 1923, vii, 405.

The care of bile fistulæ. L. NICOLAS. *Med. Klin.*, 1923, xix, 721.

New viewpoints in gall-bladder surgery. P. WALZEL-WIESENTREU. *Wien. klin. Wchnschr.*, 1923, xxxvi, 122.

The surgical management of obstructive jaundice. B. I. HARRISON. *Am. J. Surg.*, 1923, xxxvii, 169.

The retained gall-bladder; its complications and the difficulties and disadvantages of secondary cholecystectomy. D. STETTEN. *Am. J. M. Sc.*, 1923, clxvi, 1.

Studies on the bile and biliary diseases. S. F. OLIVER. *Cincinnati J. M.*, 1923, iv, 186. [464]

The determination of bile salts in the blood. S. TASHIRO. *Cincinnati J. M.*, 1923, iv, 197. [464]

Jaundice: a review of recent work. J. W. MCNEE. *Quarterly J. Med.*, 1923, xvi, 390.

Two cases of cancer of the biliary passages. DOMINGO PRAT. *An. Fac. de med., Univ. de Montevideo*, 1923, viii, 291.

Secondary operations upon the biliary system. B. MOYNIHAN. *Lancet*, 1923, ccv, 4.

The surgery of the hepatic and common bile ducts. W. J. MAYO. *Lancet*, 1923, cciv, 1299.

Calculus of the common duct formed about a foreign body. R. GRÉGOIRE. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 947.

The immediate and late results of choledochoduodenostomy. H. FLOERCKEN and E. STEDEN. *Arch. f. klin. Chir.*, 1923, cxiv, 49.

The orthology and pathology of the extrahepatic bile passages in their relation to gall-stone diseases. L. ASCHOFF. *Klin. Wchnschr.*, 1923, ii, 957.

Stone in the common and hepatic ducts. J. SHERREN. *Lancet*, 1923, ccv, 7.

Accessory pancreas. BOSSET, LOEWY, and BERTRAND. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 860.

Accessory pancreas. J. L. ROUX-BERGER. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 890.

Epigastric contusion; pancreatic lesion. SAUVÉ. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 943.

Tropical sprue and its relationship to disturbances of pancreatic digestion. D. N. SILVERMAN and W. DENIS. *South. M. J.*, 1923, xvi, 503.

Two pancreatic functional tests. G. CAMERON. *Med. J. Australia*, 1923, i, 718. [464]

A clinical study of pancreatitis. J. B. DEEVER. *Ann. Clin. Med.*, 1923, ii, 1.

Acute hæmorrhagic pancreatitis: a case presenting certain unusual features. A. G. T. FISHER. *Brit. J. Surg.*, 1923, xi, 179.

The diagnosis of pancreatic colic. R. NOVOA SANTOS. *Arch. de med. cirug. y especial.*, 1923, xii, 49.

Cysts of the pancreas. V. RONCHETTI. *Policlin.*, Rome, 1923, xxx, sez. prat., 994.

Acute œdema of the pancreas, a preliminary stage of acute pancreatic necrosis. H. ZOEPFEL. *Deutsche Ztschr. f. Chir.*, 1923, clxxv, 301. [464]

The pathogenesis of acute pancreatic fat necrosis. R. SCHWEIZER. *Schweiz. med. Wchnschr.*, 1923, liii, 400.

The roentgenological diagnosis of carcinoma of the tail of the pancreas. T. SCHOLZ and F. PFEIFFER. *J. Am. M. Ass.*, 1923, lxxxi, 275.

The surgical anatomy of the vascular system of the spleen. J. VOLKMANN. *Zentralbl. f. Chir.*, 1923, l, 436. [464]

Thrombosis of the splenic vein as an indication for surgical interference. WENDEL. 47 Versamml. d. deutsch. Gesellsch. f. Chir., 1923.

Traumatic rupture of the normal spleen. E. C. ROBIT-SHEK. *Minnesota Med.*, 1923, vi, 365. [465]

The treatment of ectopy of the spleen. A. HANNACART. *Arch. franco-belges de chir.*, 1923, xxvi, 550.

Chronic septic splenomegaly. G. WARD. *Lancet*, 1923, cciv, 429. [465]

A case of chronic splenomegaly of uncertain origin. F. P. WEBER. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Study Dis. Child., 64.

Echinococcus cyst of the spleen. E. HENNING. *Zentralbl. f. Chir.*, 1923, l, 592.

Abscesses of the spleen. C. LENORMANT and J. SÉNÈQUE. *J. de chir.*, 1923, xxi, 685.

Tumor of the spleen; splenectomy. J. DE FOURMES-TRAUX. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 941.

Primary sarcoma of the spleen. H. C. W. S. DE BRUN. *N. York M. J. & Med. Rec.*, 1923, cxviii, 85.

Bloodless splenectomy. LETSCH. 47 Versamml. d. deutsch. Gesellsch. f. Chir., 1923.

The results of stimulation and resection of the spleen. LA CAMP. 47 Versamml. d. deutsch. Gesellsch. f. Chir., 1923.

The late results of splenectomy, with particular reference to the blood picture. WEINERT. 47 Versamml. d. deutsch. Gesellsch. f. Chir., 1923.

Splenic anæmia: a clinical and pathological study of sixty-nine cases. W. C. CHANEY. *Am. J. M. Sc.*, 1923, clxv, 856. [465]

Miscellaneous

The diagnosis of obscure abdominal lesions. W. H. DICKSON. *Am. J. Roentgenol.*, 1923, x, 540.

Faulty posture causing abdominal pain simulating symptoms associated with visceral pathology. C. E. TENNANT. *Colorado Med.*, 1923, xx, 191.

The acute abdomen and its pitfalls. M. E. BLAHD. *Ohio State M. J.*, 1923, xix, 485.

Acute lesions of the upper abdomen. F. G. DYAS. *Illinois M. J.*, 1923, xlv, 27.

Spasm of the diaphragm. LARDENNOIS. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 920.

Unilateral elevation of the diaphragm. L. REICH. *Fortschr. a. d. Geb. d. Roentgenstrahlen*, 1923, xxx, 473.

Operations for diaphragmatic hernia. H. B. STONE. *Ann. Surg.*, 1923, lxxviii, 32.

Subphrenic abscess. E. AIEVOLI. *Riforma med.*, 1923, xxxix, 637.

The suprahypogastric transverse sulcus, a sign of ascites. G. L. SACCONAGHI. *Policlin.*, Rome, 1923, xxx, sez. prat., 993.

Subhepatic visceritis and periviceritis. G. CASTRONUOVO. *Riforma med.*, 1923, xxxix, 562.

Diagnosis in the right upper quadrant. J. C. SHELLITO. *J. Iowa State M. Soc.*, 1923, xiii, 267.

The pathogenesis of the twisting of a pedicle of the inner organs. B. TENCKHOFF. *Deutsche Ztschr. f. Chir.*, 1923, clxxviii, 224.

Internal retrovesical hernia. W. WOLF. *Zentralbl. f. Chir.*, 1923, l, 709.

Retropertoneal and mesenteric tumors. H. H. SCHMID. *Arch. f. Gynaek.*, 1923, cxviii, 490.

A foreign body migrating into the prevesical space. J. M. CABALLERO and N. PELLIZA. *Bol. de la Soc. de obst. y ginec. de Buenos Aires*, 1923, ii, 149.

Experiences with new methods of disinfection in laparotomy, particularly with rivanol. E. VOGT. *Zentralbl. f. Gynaek.*, 1923, xlvii, 628.

Anæsthesia of the sympathetic abdominal plexuses induced by the injection of scurocaine. M. ROUSSEL. *Presse méd.*, Par., 1923, xxxi, 606.

GYNECOLOGY

Uterus

The Kielland operation for uterine prolapse. H. J. BOLDT. *Surg., Gynec. & Obst.*, 1923, xxxvii, 101.

Le Fort's operation for prolapse in the aged. COTTÉ. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 907.

Vaginal closure in the treatment of prolapse in elderly women. J. DE FOURMESTRAUX. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 845.

Le Fort's operation for prolapse. SAVARIAUD. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 810.

An endometrial adenoma of the abdominal wall following ventrisuspension of the uterus. C. D. LOCHRANE. *J. Obst. & Gynec. Brit. Emp.*, 1923, xxx, 213. [467]

Dextroversion of the uterus with congenital absence of the left fallopian tube, ovary, broad ligament, round ligament, kidney, and ureter. W. T. DANNREUTHER. *Am. J. Obst. & Gynec.*, 1923, vi, 51.

Inguinal hernia of the uterus. F. S. LATTERI. Arch. ital. di chir., 1923, vii, 39. [467]

A foreign body in the uterus twelve years with no symptoms. I. GLASSMAN. J. Am. M. Ass., 1923, lxxxj, 110.

Syphilis of the uterus and adnexa. B. PORTIS. Surg., Gynec. & Obst., 1923, xxxvii, 37.

A mixed tumor of the cervix and vagina in an infant. S. McLEAN and M. WOLLSTEIN. Am. J. Dis. Child., 1923, xxvi, 69.

Uterine fibromyomata. P. E. TRUESDALE. Boston M. & S. J., 1923, clxxxix, 97. [467]

Some varieties and complications of uterine fibroids. M. E. DAL COLLO BONARETTI. Arch. di ostet. e ginec., 1923, xvii, 129.

The treatment of uterine fibromyomata with the X-rays. F. RATERA and S. RATERA. Prog. de la clin., Madrid, 1923, xxv, 717.

The limitations of radiotherapy in the management of fibromyoma of the uterus. J. A. CORSCADEN. Am. J. Obst. & Gynec., 1923, vi, 42. [468]

Röntgen treatment in hæmorrhagic conditions. J. G. DONATO. Siglo méd., 1923, lxx, 621.

The X-ray vs. radium in the treatment of uterine hæmorrhage. J. W. LANDHAM. South. M. J., 1923, xvi, 550.

Chemical surgery in chronic cervical endometritis, with rationale, technique, and case reports. C. W. STROBELL. N. York State J. M., 1923, xxiii, 303.

Endotheliomata of the uterus. D. P. MURPHY. Surg., Gynec. & Obst., 1923, xxxvii, 24.

Uterine carcinoma and its treatment by continuous low heat. J. F. PERCY. Am. J. Obst. & Gynec., 1923, vi, 78.

The treatment of cancer of the cervix of the uterus. L. MALLET. Presse méd., Par., 1923, xxxi, 289. [468]

Histologic and clinical studies of cervical carcinomata treated with gamma and X-rays. H. SCHMITZ. Northwest Med., 1923, xxii, 232.

Deep radiation therapy in inoperable carcinoma of the uterus and breast. J. M. BAKER. South. M. & S., 1923, lxxxv, 372.

Deep radiotherapy of uterine cancer. M. M. GALLINO. Semana méd., 1923, xxx, 117.

Abdomino-vaginal colpohysterectomy for carcinoma of the cervix. J. SALVADOR. Semana méd., 1923, xxx, 133.

Adnexal and Peri-Uterine Conditions

Adnexal suppuration in the course of uterine fibromata. A. SOIMARU. Gynec. si obst., 1923, ii, 11.

Preliminary decoliation in uterine hemisection for bilateral adnexal lesions. C. DANIEL. Gynec. si obst., 1923, ii, 3.

Abdominal hysterectomy with heat for suppurative adnexitis. ILIE GROZESCU. Gynec. si obst., 1923, ii, 32.

Surgery of the adnexa. A. FARANI. Arch. brasil. de med., 1923, xiii, 613.

Desiccated ovary; its use and preparation, and a suggestion as to a method of standardization. H. SHARLIT, J. A. CORSCADEN and W. G. LYLE. Am. J. Obst. & Gynec., 1923, vi, 33.

The ovary—its rôle in the invalidism of women. F. H. GLAZEBROOK. Internat. J. Med. & Surg., 1923, xxxvi, 292.

Tuberculosis of the ovary and pregnancy. VAUTRIN. Gynec. et obst., 1923, vii, 193. [468]

Limitation of the ovarian circulation in the treatment of sclerosing ovariitis. M. V. AMÉNABAR. Semana méd., 1923, xxx, 55.

Rupture of a multilocular ovarian cyst. F. M. BELL. J. Am. M. Ass., 1923, lxxxj, 92.

A ruptured hæmatoma of the ovary with extensive intraperitoneal hæmorrhage. L. C. RIVETT. Proc. Roy. Soc. Med., Lond., 1923, xvi, Sect. Obst. & Gynec., 81.

A dermoid cyst of the left ovary. E. POTHERAT. Bull. et mém. Soc. de chir. de Par., 1923, xlix, 921.

The transplantation of an ovarian tumor in the scar of a laparotomy wound. G. VILLATA. Policlin., Rome, 1923, xxx, sez. chir., 306.

Report of three cases: adenocarcinoma of the ovary and tube with tuberculosis, a fibromyoma in a hernial sac, and a solid carcinoma of the left ovary. L. J. STACY and O. C. MELSON. Med. Clin. N. Am., 1923, vii, 173.

A compact apparatus for the determination of the patency of the fallopian tubes in sterility and the method of use. G. S. CURRIER. Am. J. Obst. & Gynec., 1923, vi, 109.

Radiography of closed fallopian tubes. W. T. KENNEDY. Am. J. Obst. & Gynec., 1923, vi, 12.

Insufflation of the uterus and fallopian tubes. A. H. ALDRIDGE. Am. J. Obst. & Gynec., 1923, vi, 53.

Salpingitis with a sinus to the groin. H. H. SCHLINK. Med. J. Australia, 1923, ii, 67.

Embryomata and mixed tumors of the fallopian tubes. É. DELANNOY. Gynec. et obst., 1923, vii, 301. [469]

A primary epithelioma of the fallopian tube. A. GUILLEMIN and R. MORLOT. Gynec. et obst., 1923, vii, 326. [469]

External Genitalia

Abdominal hysteropexy and reconstruction of the pelvic diaphragm. C. LICINI. Arch. ital. di chir., 1923, vii, 311.

Carcinoma of the female urethra, with notes of two cases treated with radium. W. F. SHAW. J. Obst. & Gynec. Brit. Emp., 1923, xxx, 215. [469]

Anatomical and clinical contribution on the study of benign tumors of the female external genitals. F. DE GIRONCOLI. Arch. ital. di chir., 1923, vii, 177. [469]

A rare malformation of the vulva. F. RONCHESE. Surg., Gynec. & Obst., 1923, xxxvii, 22.

Total absence of the vagina; the formation of a vagina by a plastic operation. J. TRAPL. Časop. lék. česk., 1923, lxii, 197.

Transplantation of the small intestine for the creation of an artificial vagina. C. DANIEL. Gynec. si obst., 1923, ii, 29.

Vulvovaginal gangrene in endometritis. L. G. GRET. Siglo méd., 1923, lxx, 672.

A calcified tumor of the recto-vaginal septum. L. C. RIVETT. Proc. Roy. Soc. Med., Lond., 1923, xvi, Sect. Obst. & Gynec., 81.

A combined abdominosacral technique for radical operation in vaginal carcinoma. J. PHILIPOWIEZ. Zentralbl. f. Chir., 1923, l, 793.

Miscellaneous

The interrelation of gynecology and urology. H. M. N. WYNNE. Minnesota Med., 1923, vi, 445.

Diagnostic notes in obstetrics and gynecology. W. W. CHIPMAN. Canadian M. Ass. J., 1923, xlii, 493.

Theories of menstruation. J. R. HENRY. Gynec. et obst., 1923, vii, 483.

The effects of physical exercise on menstruation. S. CLOW. Lancet, 1923, cciv, 1161. [470]

Röntgenoscopy as a cause of menstrual disturbance. S. WEISS. N. York M. J. & Med. Rec., 1923, cxviii, 48.

Radiotherapy in amenorrhœa. BALLI and FORNERO. Actinoterapia, 1923, iii, 161.

The menorrhagia of young girls. E. DOUAY. Gynec. et obst., 1923, vii, 501.

The roentgen ray in the treatment of certain types of metrorrhagia. F. M. HODGES. *Virginia M. Month.*, 1923, I, 247.

A report of two cases of menstruating fistulæ. E. A. BULLARD. *Am. J. Obst. & Gynec.*, 1923, vi, 105.

The new applications of radiotherapy in gynecology. S. RECASENS. *Prog. de la clin.*, Madrid, 1923, xxv, 603; *Presse méd.*, Par., 1923, xxxi, 705.

Stimulating radiotherapy in gynecology. E. ZWEIFEL. *Rev. argent. de obst. y ginec.*, 1923, vii, 72.

The uses of radium in malignant and non-malignant conditions: with particular reference to the field of gynecology. F. I. SHROYER. *Ohio State M. J.*, 1923, xix, 498.

Objections to radiosterilization in women. M. PAZZI. *Actinoterapia*, 1923, iii, 174.

The clinical aspects of adenomyomata of the female pelvic organs. A. DONALD. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Obst. & Gynec., 82.

Lipoid cysts of the peritoneum. C. DANIEL and A. BABES. *Gynec. si obst.*, 1923, ii, 6.

Primary sterility. A. J. RONGY. *Am. J. Obst. & Gynec.*, 1923, v, 631. [470]

The pathogenesis and treatment of certain forms of sterility in women. POBLACIÓN. *Prog. de la clin.*, Madrid, 1923, xxv, 666; *Med. Ibera*, 1923, vii, 529.

The treatment of sterility in women. *Riforma med.*, 1923, xxxix, 708.

OBSTETRICS

Pregnancy and Its Complications

The aged primipara. R. REMMELTS. *Gynec. et obst.*, 1923, vii, 476.

New methods of diagnosing early pregnancy. W. C. GAYLER. *J. Missouri State M. Ass.*, 1923, xx, 223.

A case of quintuple pregnancy. S. R. FOSTER and W. CARSON. *Lancet*, 1923, ccv, 120.

Radiograms in pregnancy. S. RECASENS. *Prog. de la clin.*, Madrid, 1923, xxv, 618.

Roentgenograms of the fetal skeleton as a positive sign of pregnancy. I. F. STEIN and R. A. ARENS. *J. Am. M. Ass.*, 1923, lxxxi, 4.

The diagnosis of anencephaly before delivery. J. C. LAZCANO. *Rev. argent. de obst. y ginec.*, 1923, vii, 82.

Fibroid tumors complicating pregnancy and their treatment. G. W. KOSMAK. *Am. J. Obst. & Gynec.*, 1923, vi, 63.

The incidence of cancer of the cervix in pregnancy. B. C. HIRST. *N. York State J. M.*, 1923, xxiii, 300.

Fits during the fourth month of pregnancy without other signs of toxæmia. W. F. T. HAULTAIN and I. S. HALL. *Edinburgh M. J.*, 1923, n.s. xxx, Tr. *Edinburgh Obst. Soc.*, 113.

The pathologic anatomy of "auto-intoxications" in pregnancy and childbirth. F. HARBITZ. *Surg., Gynec. & Obst.*, 1923, xxxvi, 767. [471]

The routine treatment of eclampsia. J. L. LACKIE. *Edinburgh M. J.*, 1923, n.s. xxx, Tr. *Edinburgh Obst. Soc.*, 101.

Intractable vomiting of pregnancy. S. E. BERMANN. *Semana méd.*, 1923, xxx, 109.

Two cases of severe hyperemesis gravidarum: a review of therapeutic measures. S. E. BERMANN. *Bol. de la Soc. de obst. y ginec. de Buenos Aires*, 1923, ii, 169.

Intervention in intractable hyperemesis gravidarum. D. LUCIE BORCEA. *Gynec. si obst.*, 1923, ii, 24.

Hemiplegia occurring in a pregnant woman at full term; sudden onset accompanied by transient albuminuria; cesarean section; gradual recovery. F. COOK. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Clin. Sect., 43.

Cardiac decompensation during pregnancy and labor. K. L. SCHAUPP. *California State J. M.*, 1923, xxi, 290.

Heart disease in pregnancy. W. B. BREED and P. D. WHITE. *Boston M. & S. J.*, 1923, clxxxviii, 984. [471]

Notes on the problem of heart diseases in pregnancy. B. E. HAMILTON. *Boston M. & S. J.*, 1923, clxxxviii, 987. [471]

Pregnancy and heart disease. D. G. CAMPBELL. *Canadian M. Ass. J.*, 1923, xiii, 244. [471]

Pregnancy and tuberculosis. O. H. SCHWARZ. *J. Missouri State M. Ass.*, 1923, xx, 227.

Ileus during pregnancy. S. GOLDSCHMIDT. *Zentralbl. f. Gynaek.*, 1923, xlvii, 636.

Acute ketosis during pregnancy. J. H. ROBINSON. *Lancet*, 1923, ccv, 69.

Abortion, criminal and inevitable. N. W. MOORE. *Kentucky M. J.*, 1923, xxi, 332.

Uteroplacental crises causing abortion. GOUGEROT. *Bull. et mém. Soc. méd. d. hôp. de Par.*, 1923, 3 s. xxxix, 865.

Vaginal hysterectomy in severe postabortive peritonitis. J. P. TOURNEUX. *Rev. franç. de gynéc. et d'obst.*, 1923, xviii, 330.

A case of placenta prævia. S. GONZÁLEZ. *Siglo méd.*, 1923, lxx, 697.

Abdominal cesarean section for placenta prævia. M. O'FARRELL. *Rev. argent. de obst. y ginec.*, 1923, vii, 90.

A study of the death of the full-time extra-uterine fetus *in situ* and its scientific value. J. OLIVER. *N. York M. J. & Med. Rec.*, 1923, cxviii, 81.

Abdominal pregnancy. J. B. JONES. *Virginia M. Month.*, 1923, I, 147. [472]

The processes of tubal pregnancy. E. McDONALD. *Am. J. Obst. & Gynec.*, 1923, vi, 72.

A further contribution to the clinical aspects and the treatment of the complications of tubal pregnancy. C. LENORMANT and G. HARTMANN-KEPPEL. *Gynec. et obst.*, 1923, vii, 273. [472]

Synchronous rupture of bilateral ectopics. L. R. APPLEBY. *Canadian M. Ass. J.*, 1923, xiii, 514.

Ruptured ectopic gestation, operation with recovery: case report. C. FARMER. *Kentucky M. J.*, 1923, xxi, 355.

True ovarian pregnancy. O. BROOKS and L. L. CHARPIER. *J. Am. M. Ass.*, 1923, lxxxi, 110.

Labor and Its Complications

Hyoscine and morphine narcosis in the management of labor. F. A. H. MICHOD. *Med. J. Australia*, 1923, ii, 83.

Dystocia due to rigidity of the uterine os resulting from acute inflammation. J. E. BAZÁN. *Semana méd.*, 1923, xxx, 160.

The obstetrical forceps. F. LA TORRE. *Clin. ostet.*, 1923, xxv, 121, 185.

The prevention of birth injuries of the child. H. EHRENFEST. *Illinois M. J.*, 1923, xlv, 20.

A study of the results in face presentations. A. W. TALLANT. *Am. J. Obst. & Gynec.*, 1923, vi, 116.

The report of a case of rupture of the uterus. R. H. DUNN. *Virginia M. Month.*, 1923, I, 253.

The etiology of eclampsia. R. OTTENBERG. *J. Am. M. Ass.*, 1923, lxxxi, 295.

Hæmorrhage in nerve centers in eclampsia. LEVANT and PORTES. *Gynec. et obst.*, 1923, vii, 332. [473]

The treatment of eclampsia—a symposium. B. M. ANSPACH, W. GILLESPIE, W. D. MACON, W. S. BOWEN, and others. *Therap. Gaz.*, 1923, 38. xxxix, 457.

Syncope and shock in labor. A. GROSSE. *Rev. franç. de gynec. et d'obst.*, 1923, xviii, 209. [473]

Symphysiotomy in general practice. J. B. GONZÁLEZ. *Semana méd.*, 1923, xxx, 1069; *Bol. de la Soc. de obst. y ginec. de Buenos Aires*, 1923, ii, 113.

Episiotomy and its repair. W. SHEPHERD. *Nebraska State M. J.*, 1923, viii, 240.

Secondary immediate perineorrhaphy in the treatment of lacerations of the perineum. P. BALARD. *Med. Press*, 1923, n.s. cxvi, 53.

The treatment of concealed accidental hæmorrhage by conservative cæsarean section. R. A. LENNIE. *Edinburgh Obst. Soc.*, 1923, n.s. xxx, Tr. Edinburgh Obst. Soc., 106.

The mortality and morbidity of cæsarean section vs. high forceps delivery based on 1,000 consecutive deliveries at the Woman's Hospital. E. C. LYON. *Am. J. Obst. & Gynec.*, 1923, vi, 101.

The mortality in cæsarean section. J. O. POLAK. *Surg., Gynec. & Obst.*, 1923, xxxvii, 115.

Puerperium and Its Complications

The puerperium. J. PHILLIPS. *Practitioner*, 1923, cx, 409. [473]

The postpartum clinic. M. P. RUCKER. *South. M. & S.*, 1923, lxxxv, 370.

Subacute uterine inversion. B. RIBEIRO DE CASTRO. *Arch. brasil. de med.*, 1923, xiii, 410.

A typical puerperal hæmorrhage. R. LIMA. *Rev. de gynec. e d'obst.*, 1923, xvii, 155.

An outline of the history of puerperal fever. A. COUVELAIRE. *Gynec. et obst.*, 1923, viii, 1.

Puerperal infection produced by Fraenkel's bacillus, and experiments in its prophylaxis. F. G. TRIVINO. *Med. Ibera*, 1923, vii, 1.

Gas-bacillus infection of the uterus. E. FRAENKEL. *Arch. f. path. Anat.*, 1923, ccxli, 352. [474]

A study in puerperal morbidity. E. ENO. *Surg., Gynec. & Obst.*, 1923, xxxvi, 797. [474]

Newborn

The premature infant. J. H. MARCUS. *Am. Med.*, 1923, xxix, 517.

A case of inspiratory apnoea in a newborn infant, with pathologic report. W. D. KIRKWOOD, B. MYERS, and T. W. LUMSDEN. *Lancet*, 1923, ccv, 65.

The leucocyte count in the newborn with dehydration fever. H. BAKWIN and R. M. MORRIS. *Am. J. Dis. Child.*, 1923, xxvi, 23.

Placental iron and its relationship to icterus neonatorum. A. C. WILLIAMSON. *Surg., Gynec. & Obst.*, 1923, xxxvii, 57.

Hæmorrhages in the newborn. L. A. WING. *Am. J. Obst. & Gynec.*, 1923, vi, 85.

Acute bacillus coli infection of the gastro-intestinal tract in a newborn baby contracted from its mother. R. C. JEWESBURY and L. S. DUDGEON. *Lancet*, 1923, ccv, 118.

Miscellaneous

Birth control as seen by an open mind. M. ABBOTT-ANDERSON. *Practitioner*, 1923, cxi, 6.

Conception control. F. E. BARRETT. *Practitioner*, 1923, cxi, 17.

The harmful effects of artificial contraceptive methods. A. L. MCLLOY. *Practitioner*, 1923, cxi, 25.

Birth control—medical advice. J. S. FAIRBAIRN. *Practitioner*, 1923, cxi, 36.

The problem of birth control. B. WHITEHOUSE. *Practitioner*, 1923, cxi, 43.

Birth control—medical and sociological aspects. W. E. FOTHERGILL. *Practitioner*, 1923, cxi, 49.

Birth control. E. PRITCHARD. *Practitioner*, 1923, cxi, 56.

Birth control and economy. H. CORBY. *Practitioner*, 1923, cxi, 62.

Contraception technique: a consideration of 1,400 cases. N. HAIRE. *Practitioner*, 1923, cxi, 74.

Present-day obstetrical procedure. T. S. FIELD. *South. M. J.*, 1923, xvi, 527.

Obstetrics of 1,000 cases as seen by a country practitioner. A. KUHLMANN. *Minnesota Med.*, 1923, vi, 449.

An obstetrical case presenting an unusual group of complications. L. E. PHANEUF. *Boston M. & S. J.*, 1923, clxxxviii, 942. [475]

GENITO-URINARY SURGERY

Adrenal, Kidney, and Ureter

The adrenal and thymus in experimental chloroform narcosis. P. BATOCCHI. *Sperimentale*, 1923, lxxvii, 5.

The influence of the suprarenal cortex on the gonads of rabbits. I. The effects of suprarenal injury (by removal or freezing) on the interstitial cells of the ovary. H. L. JAFFE and D. MARINE. *J. Exper. Med.*, 1923, xxxviii, 93. [476]

The influence of the suprarenal cortex on the gonads of rabbits. II. The effects of suprarenal injury (by removal or freezing) on the tubules and interstitial cells (Leydig) of the testis. H. L. JAFFE and D. MARINE. *J. Exper. Med.*, 1923, xxxviii, 107. [476]

Normal and morbid conditions of the adrenals in 100 hospital and asylum cases; with special reference to dementia præcox. F. W. MOTT and I. E. HUTTON. *Brit. M. J.*, 1923, ii, 95.

A cyst of the right suprarenal capsule removed by operation. H. A. BALLANCE. *Brit. M. J.*, 1923, i, 926. [476]

Suprarenal tumors—suprarenomata. R. G. CABRED. *Semana méd.*, 1923, xxx, 747. [476]

Trauma and hypernephroid tumors. G. B. GRUBER. *Ztschr. f. urol. Chir.*, 1923, xiii, 66.

Kidney function from the standpoint of the organism as a whole. W. D. MACNIDER. *South. M. & S.*, 1923, lxxxv, 349.

Salivary urea and the mercury-combining power of saliva: a new and simple index of renal insufficiency. P. S. HENCH. *Med. Clin. N. Am.*, 1923, vii, 123.

Acute renal insufficiency following major surgical operations. C. W. BARRIER and N. M. KEITH. *Med. Clin. N. Am.*, 1923, vii, 135.

The fixation of the kidney. A. H. SOUTHAM. *Quart. J. Med.*, 1923, xvi, 283.

Disturbances of nitrogen elimination in nephropexy; diagnostic and prognostic importance. (Collective Review.) G. NICOLICH, JR. *Policlin.*, Rome, 1923, xxx, sez. chir., 319.

The surgery of the ectopic kidney. J. R. CAULK. *Ann. Surg.*, 1923, lxxviii, 65.

On unilateral fused kidney and allied renal malformations. M. J. STEWART and S. D. LODGE. *Brit. J. Surg.*, 1923, xi, 27.

A physiopathologic study of a kidney with a double ureter. J. GUYOT and G. JEANNENEY. *J. d'urol. méd. et chir.*, 1923, xv, 81. [477]

Report of a case of duplication of the renal pelvis and ureter, with extravasical opening of one ureter resulting in hydronephrosis of the upper pelvis and hydro-ureter. H. C. BUMPUS, JR. *Med. Clin. N. Am.*, 1923, vii, 141.

Traumatic rupture of the kidney. V. F. MARSHALL. *J.-Lancet*, 1923, xliii, 345.

Double traumatic rupture of the kidneys in the presence of hydronephrosis. M. REHBEIN. *Ztschr. f. urol. Chir.*, 1923, xii, 455.

Hydronephrosis. W. C. QUINBY. *J. Urol.*, 1923, x, 45. [477]
Zentralbl. f. Gynaek., 1923, xlvii, 306.

Primary stone formation in an ectopic kidney. C. CHAUDANO. *Policlin.*, Rome, 1923, xxx, sez. chir., 366.

Coincident nephrolithiasis and cholelithiasis. F. KAREWSKI. *Ztschr. f. urol. Chir.*, 1923, xii, 182.

A large serous cyst of the right kidney in a young pregnant woman. A. ANGELI. *Arch. ital. di chir.*, 1923, vii, 299.

The importance of physical factors in the prognosis of renal infections. L. HERMAN. *Atlantic M. J.*, 1923, xxvi, 659.

Kidney infections due to the gonococcus. H. M. N. WYNNE. *J.-Lancet*, 1923, xliii, 352.

Renal tuberculosis. L. CASPER. *Med. Klin.*, 1923, xix, 597.

The surgery of renal tuberculosis. KUERMELL. 47. Versamml. d. deutsch. Gesellsch. f. Chir., 1923.

A fatal case of renal insufficiency secondary to nephrectomy for tuberculosis. PATEL and THÉVENOT. *J. d'urol. méd. et chir.*, 1923, xvi, 56.

Colon-bacillus nephritis. BARTH. 47. Versamml. d. deutsch. Gesellsch. f. Chir., 1923.

The pathology of nephritis dolorosa and calculous anuria. W. ISRAËL. *Ztschr. f. urol. Chir.*, 1923, xii, 206.

Anuria from toxic chloroform nephritis. GUICHEMERRE. *J. d'urol. méd. et chir.*, 1923, xvi, 47.

Conservative surgical treatment of suppurative nephritis. LEHMANN. *Ztschr. f. urol. Chir.*, 1923, xii, 106.

Pyelitis from bacillus pyocyaneus. G. FOLEY. *Semana méd.*, 1923, xxx, 147.

Pyelotomy. M. ZONDEK. *Ztschr. f. urol. Chir.*, 1923, xii, 163.

Anterior pyelotomy. P. ROSENSTEIN. *Zentralbl. f. urol. Chir.*, 1923, xii, 269.

Malignant neoplasia of the kidney occurring in infancy. J. A. H. MAGOUN, JR., and W. C. MACCARTY. *Surg., Gynec. & Obst.*, 1923, xxxvi, 781. [477]

An unusual malignant "mixed" tumor (adenosarcoma) of the kidney in a young child. A. J. HOOD and H. ALBERT. *California State J. Med.*, 1923, xxi, 281.

A case of renal sarcoma. A. FARANI. *Arch. brasil. de med.*, 1923, xiii, 413.

Perirenal hydronephrosis. COENEN. 47. Versamml. d. deutsch. Gesellsch. f. Chir., 1923.

A perinephritic abscess appearing first on the left and, after an interval of a year, on the right side. X. DELORE and C. DUNET. *J. d'urol. méd. et chir.*, 1923, xv, 195. [478]

A large perinephritic tumor on the right side causing intestinal obstruction. A. RICHARD. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 956.

The removal of a ureteral stone by cystoscopic manipulation; disintegration of a cystin stone by pelvic lavage and internal medication. A. J. CROWELL. *Surg., Gynec. & Obst.*, 1923, xxxvii, 112.

Double ureter, tuberculous kidney, nephrectomy. A. GIULIANI. *J. d'urol. méd. et chir.*, 1923, xv, 197. [478]

Primary carcinoma of the ureter. L. H. MEEKER and J. F. MCCARTHY. *J. Am. M. Ass.*, 1923, lxxxi, 104.

Bladder, Urethra, and Penis

A new cystoscope for the female bladder and urethra. L. L. FULKERSON. *Am. J. Obst. & Gynec.*, 1923, vi, 125.

Absorption from the urinary bladder. F. C. MANN and J. A. H. MAGOUN. *Am. J. M. Sc.*, 1923, clxvi, 96.

Rupture of the bladder. P. C. PILON. *J.-Lancet*, 1923, xliii, 357.

Cinematographic cystoscopy. STUTZIN. 47. Versamml. d. deutsch. Gesellsch. f. Chir., 1923.

An enormous vesical calculus. P. MARTÍN. *Siglo méd.*, 1923, lxx, 650.

Bladder hernia in infancy. C. OLIVA. *Arch. ital. di chir.*, 1923, vi, 533. [478]

Bladder diverticula. A. BLOCH and P. FRANK. *Ztschr. f. urol. Chir.*, 1923, xii, 242.

Notes on a case of diverticulum of the bladder. J. M. RENTON. *Glasgow M. J.*, 1923, n.s.xviii, 1.

Cystocele due to a diverticulum of the bladder containing a stone. A. CHUECO, R. GANDULFO, and A. OCAMPO. *Semana méd.*, 1923, xxx, 158.

The operative treatment of vesical diverticula. J. S. JOLY. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Urol., 55. [479]

Neurinomatosis of the bladder. E. STEDEN. *Deutsche Ztschr. f. Chir.*, 1923, clxxvii, 137.

Syphilis of the urinary bladder. E. F. CHOCHOLKA. *Časop. lék. česk.*, 1922, lxi, 825, 855, 884, 903. [479]

The diagnosis and treatment of inflammatory affections of the bladder and kidney pelvis. A. LEWIN. *Ztschr. f. urol. Chir.*, 1923, xii, 171.

Tumors of the bladder. J. H. HAYS. *J. Oklahoma State M. Ass.*, 1923, xvi, 215.

A case of carcinoma of the bladder with cysts. C. BLAVET DI BRIGA. *J. d'urol. méd. et chir.*, 1923, xvi, 29.

Electro-coagulation and chemo-coagulation of bladder tumors. E. WOSSIDLO. *Ztschr. f. urol. Chir.*, 1923, xii, 385.

An improved method of maintaining a permanent cystostomy opening. C. ROMITI. *Ann. ital. di chir.*, 1923, ii, 519.

A case of total cystectomy in a woman with carcinoma of the bladder. ROCHET and THÉVENOT. *J. d'urol. méd. et chir.*, 1923, xv, 210. [479]

The genesis and present-day treatment of urethral strictures. E. BRACK. *Arch. f. path. Anat.*, 1923, ccxli, 372.

Stricture of the bulbous region. G. D. LOMBARDO. *Surg., Gynec. & Obst.*, 1923, xxxvii, 69.

Benign peri-urethral tumors. F. E. GRIMALDI. *Semana méd.*, 1923, xxx, 1149.

Urethral defects in women. K. FRANZ. *Ztschr. f. urol. Chir.*, 1923, xii, 315.

Hypospadias. A. MORALES. *Siglo méd.*, 1923, lxx, 549.

Genital Organs

Adenoma of the prostate gland. C. M. MIX. *J. Indiana State M. Ass.*, 1923, xvi, 222.

Tuberculosis of the adenomatous prostate. J. D. BARNEY. *J. Urol.*, 1923, x, 81.

Myomatous and adenomyomatous hypertrophy of the prostate. E. KORNITZER and C. ZANGER. *Ztschr. f. urol. Chir.*, 1923, xi, 137. [480]

The surgical treatment of prostatic hypertrophy. H. RUBRITUS. *Ztschr. f. urol. Chir.*, 1923, xiii, 35.

Recurrence of the prostate. W. L. CHAMPION and A. F. CALDWELL. *J. Med. Ass. Georgia*, 1923, xii, 267.

Cancer of the prostate. J. H. SANFORD. J. Oklahoma State M. Ass., 1923, xvi, 217.

Certain criteria of the management in prostatic carcinoma. E. M. WATSON and C. C. HERGER. N. York State J. M., 1923, xxiii, 309.

The phthalein test as a means of establishing the prognosis of operation on prostatic cases. M. NEGRO and G. COLOMBET. J. d'urolog. méd. et chir., 1923, xvi, 12.

The closure of the suprapubic urinary fistula following suprapubic prostatectomy; observations on sixty-eight cases. H. P. W. WHITE. Brit. J. Surg., 1923, xi, 173.

Testicular transplantation. BRAND and LIESCHIED. Ztschr. f. urol. Chir., 1923, xii, 460.

Acute orchitis from torsion of a hydatid of Morgagni. MICHEL and NICOLLEAU. Arch. franco-belges de chir., 1923, xxvi, 600.

The differentiation between tuberculous and non-tuberculous inflammation of the epididymis. A. R. STEVENS. J. Urol., 1923, x, 85. [480]

The surgical treatment of tuberculosis of the epididymis. G. SOEDERLUNG. Acta chirurg. Scand., 1923, lv, 513. [481]

Miscellaneous

Some things the general practitioner should know about urology. G. J. THOMAS. J.-Lancet, 1923, xliii, 322.

Concerning the source of the urine. F. PUTZU. Arch. ital. di chir., 1923, vii, 228.

Absorption from the urinary tract. J. A. H. MAGOUN, JR. J. Urol., 1923, x, 67.

Radiography in the examination of the urinary tract. C. G. SUTHERLAND. J. Radiol., 1923, iv, 221.

The production of urinary calculi by the devitalization and infection of teeth in dogs with streptococci from cases of nephrolithiasis. E. C. ROSENOW and J. G. MEISSER. Arch. Int. Med., 1923, xxxi, 807. [482]

Complete urinary obstruction due to hydatid cyst. C. L. DEMING. J. Urol., 1923, x, 1.

The causative factor of vessel compression in upper urinary obstruction. G. C. BURR. Grace Hosp. Bull., Detroit, 1923, vii, 1.

The clinical significance of hæmaturia. H. RUBRITUS. Wien: Rikola Verlag, 1923.

The significance of hæmaturia. C. W. SHROPSHIRE. Urol. & Cutan. Rev., 1923, xxvii, 425.

The treatment of colipyruria in children. V. POULSEN. Am. J. Dis. Child., 1923, xxvi, 56.

The pathogenic and prognostic significance of hydruria. A. FERRANNINI. Riforma med. 1923, xxix, 684.

The idiopathic urine reaction of Wildbolz. E. ROEDERLIUS. Ztschr. f. urol. Chir., 1922, x, 77. [483]

A standard for the determination of gonorrhœa in the male. F. M. PHIFER and N. K. FORSTER. Illinois M. J., 1923, xlv, 42.

The diagnosis and cure of gonorrhœa. G. W. HARTMAN. California State J. M., 1923, xxi, 303. [483]

Anorectal gonorrhœa. LÉVY-WEISSMANN. J. d'urolog. méd. et chir., 1923, xiv, 13. [484]

The clinical observations with acriflavine in the treatment of 200 cases of gonorrhœa. A. J. GREENBERGER and M. E. GREENBERGER. Urol. & Cutan. Rev., 1923, xxvii, 422.

A note on the bacteriostatic action of urine after the intravenous administration of mercurochrome to normal rabbits. J. H. HILL and J. A. C. COLSTON. Bull. Johns Hopkins Hosp., Balt., 1923, xxiv, 220.

Electrotherapeutics in urology. V. C. PEDERSEN. N. York M. J. & Med. Rec., 1923, cxviii, 18.

The choice of anæsthetic in urology. H. H. YOUNG. Surg., Gynec. & Obst., 1923, xxxvii, 109.

Tunnelled sounds and a modification of the Maisonneuve urethrotome. B. H. CAPLES. J. Urol., 1923, x, 93.

SURGERY OF THE BONES, JOINTS, MUSCLES, TENDONS

Condition of the Bones, Joints, Muscles, Tendons, Etc.

Regenerative processes in the long bones with normal and impaired blood supply. C. ROHDE. Arch. f. klin. Chir., 1923, cxliii, 530.

Osseous and cartilaginous neoformations resulting from grafts of fixed tissues. B. POLETTINI. Arch. ital. di chir., 1923, vii, 169. [485]

The X-ray diagnosis of bone lesions. R. W. LOVETT. Illinois M. J., 1923, xlv, 48.

Osteitis fibrosa. R. L. KNAGGS. Brit. J. Surg., 1923, x, 487. [485]

Observations on osteitis deformans. S. MOORE. Am. J. Roentgenol., 1923, x, 507. [486]

Osteomyelitis. A. J. OCHSNER. J.-Lancet, 1923, xliii, 315.

A case of acute osteomyelitis. J. D. TRAWICK. Kentucky M. J., 1923, xxi, 353.

The etiology of Koehler's disease (metatarsalgia). F. CAHEN-BRACH. Arch. f. klin. Chir., 1923, cxxiv, 144.

The etiology of Koehler's disease. W. KLETT. Fortschr. a. d. Geb. d. Roentgenstrahlen, 1923, xxx, 501.

The etiology of Koehler's disease. M. KAPPIS. Beitr. z. klin. Chir., 1923, cxxix, 61.

Multiple tuberculous bone lesions complicating chronic pulmonary tuberculosis. J. ROSENBLATT. J. Am. M. Ass., 1923, lxxxii, 184.

The pathology and treatment of bone tuberculosis. R. WEGTOWSKI. Polska gaz. lek., 1923, ii, 221.

The roentgenological diagnosis of bone tumors. R. W. HUTCHINSON. U. S. Naval M. Bull., 1923, xviii, 679. [487]

Metastatic tumors of bone. C. A. JOLL. Brit. J. Surg., 1923, xi, 38.

The roentgenological diagnosis of osteosarcoma. L. TAVERNIER. Arch. franco-belges de chir., 1923, xxvi, 527.

Pathological remarks on sarcoma of the long bones. S. G. SHATTOCK. Brit. J. Surg., 1923, xi, 127.

Reactive processes in cartilage after various injuries. F. KOENIG. Arch. f. klin. Chir., 1923, cxxiv, 1.

The constitutionally weak epiphysis and its relation to rickets, osteo-chondritis, and arthritis deformans. LEHMANN. Deutsche Ztschr. f. Chir., 1923, clxxviii, 11.

Osteochondritis dissecans, a clinical and anatomopathologic study. R. SOMMER. Beitr. z. klin. Chir., 1923, cxxix, 1.

Charcot joint following trauma. C. H. HEYMAN. Ohio State M. J., 1923, xix 496.

The nature of the so-called rheumatoid arthritis and osteo-arthritis. A. G. T. FISHER. Brit. M. J., 1923, ii, 102.

Arthritis deformans, varieties and treatment. AXHAUSEN. 47. Versamml. d. deutsch. Gesellsch. f. Chir., 1923.

Hæmorrhosis and its relation to deforming diseases of the joints. PETERSEN. 47. Versamml. d. deutsch. Gesellsch. f. Chir., 1923.

Roentgen gastro-intestinal studies of patients with chronic deforming arthritis. R. G. TAYLOR. Am. J. Roentgenol., 1923, x, 424. [487]

The skin temperature of tuberculous joints. C. MAU. Muenchen. med. Wehnschr., 1923, lxx, 562.

Processes of healing in injuries of the joint surfaces. AXHAUSEN. 47. Versamml. d. deutsch. Gesellsch. f. Chir., 1923.

Good and bad ankylosis. DELCHEF. Arch. franco-belges de chir., 1923, xxvi, 575.

Ossification of muscle and spinal cord injury. M. REHBEIN. Deutsche Ztschr. f. Chir., 1923, clxxviii, 60.

A case of myositis ossificans exhibiting acute symptoms. C. M. PAGE. Proc. Roy. Soc. Med., Lond., 1923, xvi, Clin. Sect., 32.

Muscular atrophy of peripheral origin. M. ARCANGELI. Arch. ital. di chir., 1923, vii, 329.

Subcutaneous simultaneous rupture of three tendons. G. M. FASIANI. Riforma med., 1923, xxxix, 557.

Hereditary cleidocranial dysostosis. I. J. MCCURDY and R. W. BAER. J. Am. M. Ass., 1923, lxxxi, 9.

Osteomyelitis of the left humerus treated by auto-vaccination. TUFFIER, BAZY, OMBRÉDANNE, VEAU, and others. Bull. et mém. Soc. de chir. de Par., 1923, xlix, 805.

A case of syphilitic osteomyelitis involving the elbow joint. C. M. PAGE. Proc. Roy. Soc. Med., Lond., 1923, xvi, Clin. Sect., 32.

Malacia of the os lunatum. SONNTAG. Fortschr. a. d. Geb. d. Roentgenstrahlen, 1923, xxx, 487.

Injuries about the carpus. P. NEUHOFER. Beitr. z. klin. Chir., 1923, cxxviii, 730.

The mobility of the joints of the hand. H. PETERSEN. Ztschr. f. Anat. u. Entwicklungsgesch., 1922, lxiv, 565.

Juvenile deforming metatarsophalangeal osteochondritis. P. LEWIN. J. Am. M. Ass., 1923, lxxxi, 189.

Unusual calcareous deposits in the soft tissues of the hands. J. R. LOGAN. Arch. Radiol. & Electrotherapy, 1923, xxviii, 55.

Cervical rib. H. BRUNN and H. W. FLEMING. Surg. Clin. N. Am., 1923, iii, 615. [487]

Osteo-arthritis of the spine. C. GOULDESBOUGH. Proc. Roy. Soc. Med., Lond., 1923, xvi, Sect. Med., 63. [488]

Primary osteosarcoma of the adductor magnus. C. F. BIANCHETTI. Arch. ital. di chir., 1923, vii, 233.

The prognosis and treatment of coxalgia. J. PÉREZ LARROSA. Clin. y lab., 1923, ii, 46.

The development of osteochondritis juvenalis. NUSSBAUM. 47. Versamml. d. deutsch. Gesellsch. f. Chir., 1923.

Two cases of deforming osteochondritis of the hip, one traced for eleven years and the other complicated by congenital lumbar kyphosis. ROBIN. Rev. d'orthop., 1923, xxx, 229.

Tuberculosis of the hip in children: pathology, symptoms, and diagnosis. J. H. MARCUS. J. Med. Soc. N. Jersey, 1923, xx, 223.

Bone cyst of the neck of the femur. ROUVILLOIS and PLISSON. Bull. et mém. Soc. de chir. de Par., 1923, xlix, 1005.

A clinical and anatomical study of a case of congenital genu recurvatum. BOULARAN and BOUNHOURE. Rev. d'orthop., 1923, xxx, 245.

Chronic hypertrophic villous arthritis of the knee. H. E. SANTEE. Ann. Surg., 1923, lxxviii, 104.

Radiography of the knee joint. E. SCOTT. Arch. Radiol. & Electrotherapy, 1923, xxviii, 57.

Rupture of the patellar ligament. J. PHILIPOWICZ. Zentralbl. f. Chir., 1923, l, 833.

A case of sarcomatous perithelioma of the articular capsule of the right knee. U. FACCINI. Arch. ital. di chir., 1923, vii, 481.

Limitation of flexion of the foot through shortened calf muscles and its non-surgical correction. O. F. SCHUSTER. Med. Times, 1923, li, 138. [488]

A case of bidactylous foot. F. MINERVINI. Chir. d. organi di movimento, 1923, vii, 403.

The prevention and rational treatment of flat-foot. A. WEINERT. Arch. f. orthop. u. Unfall-Chir., 1923, xxi, 417.

Inflammation of the deep calcaneal bursa. A. E. HERTZLER. J. Am. M. Ass., 1923, lxxxi, 8.

Surgery of the Bones, Joints, Muscles, Tendons, Etc.

The obliteration of bone cavities in chronic osteomyelitis by free fat transplantation. G. R. DUNN. Minnesota Med., 1923, vi, 379. [489]

Further experiences with the segmentation of high grade rachitic deformities of the bones. C. SPRINGER. Ztschr. f. orthop. Chir., 1923, xliii, 161.

The treatment of severe ankylosis by combined forceful and gentle mobilization. DE MUNTER. Arch. franco-belges de chir., 1923, xxvi, 578.

Discussion on arthroplasty at the International Congress of Surgeons. HEY, GROVES, PUTTI, MACAUSLAND, and others. Brit. M. J., 1923, ii, 142.

Tendon transplantation. W. S. ROBERTS. South. M. J., 1923, xvi, 545.

Immediate plastic operations in injuries involving tendons or joints. G. M. DORRANCE and J. W. BRANSFIELD. Ann. Surg., 1923, lxxviii, 100. [489]

The responsibility of the surgeon for the formation of ischæmic contracture. A. SCHUBERT. Med. Klin., 1923, xix, 373.

Discussion on the operative treatment of spastic paralysis. A. S. B. BANKART, T. H. OPENSHAW, G. RIDDOCH, E. M. LITTLE, and others. Proc. Roy. Soc. Med., Lond., 1923, xvi, Sect. Orthop., 33.

The surgical reconstruction of the paralytic upper extremity. A. STEINDLER. J. Iowa State M. Soc., 1923, xliii, 277.

Orthopedic surgery of the upper extremity. A. STEINDLER. Minnesota Med., 1923, vi, 431. [489]

The treatment of calcified subdeltoid bursitis by diathermia. J. F. HARRIS. J. Am. M. Ass., 1923, lxxxi, 98.

The treatment of the flail elbow joint with a new operation of arthrodesis. W. MERCER. Lancet, 1923, cciv, 796. [490]

Rupture of the tendon of the extensor pollicis longus after fracture of the radius, and its operative treatment. G. HAUCK. Arch. f. klin. Chir., 1923, cxxiv, 81.

Tendon transplantation in the forearm. R. D. KENNEDY. Surg., Gynec. & Obst., 1923, xxxvii, 112.

Albee's method in the treatment of Pott's disease. J. G. LISCANO. Siglo méd., 1923, lxx, 624, 652, 680, 701, 726.

Pseudarthrosis of the neck of the femur; treatment with a bone peg. A. BASSET. Bull. et mém. Soc. de chir. de Par., 1923, xlix, 877.

New conquests relating to cineplastic amputations and to the cinematic prosthesis. D. DEL VALLE, G. BOSCH ARANA, and F. WILDERMUTH. Chir. d. organi di movimento, 1923, vii, 244.

Flail knee; extirpation of the meniscus. P. HALLOPEAU. Bull. et mém. Soc. de chir. de Par., 1923, xlix, 884.

The technique of osteoplastic resection for ankylosis with genu valgo- or varo-flexa. W. PORZELT. Zentralbl. f. Chir., 1923, l, 826.

The treatment of genu valgum and varum by a bow-shaped osteotomy. PERTHES. 47. Versamml. d. deutsch. Gesellsch. f. Chir., 1923.

The treatment of traumatic wounds of the knee joint. R. C. WEBB. J.-Lancet, 1923, xliii, 333.

Suture of the patella with silver; rupture and migration of the fragment into the popliteal space. P. MAUCLAIRE. Bull. et mém. Soc. de chir. de Par., 1923, xlix, 885.

The use of osteoperiosteal grafts in the treatment of tuberculous osteo-arthritis of the knee in a child. LAVALLE. Bull. et mém. Soc. de chir. de Par., 1923, xlix, 812.

The prophylaxis and treatment of knee-joint contractures in polyarthritis. T. NIELSEN. Ugesk. f. Læger, 1923, lxxiv, 693.

Excision of the knee joint. J. F. COWAN. Surg. Clin. N. Am., 1923, iii, 633. [490]

Tendon transplantation in the lower extremity. O. L. MILLER. South. M. & S., 1923, lxxv, 208. [491]

The operative treatment of hallux valgus. D. SILVER. J. Bone & Joint Surg., 1923, xxi, 225. [491]

Fractures and Dislocations

Fractures in transplanted bone. S. L. HAAS. Surg., Gynec. & Obst., 1923, xxxvi, 749. [492]

The anatomical and mechanical bases for the reduction and treatment of fractures. BOEHLER. 47. Versamml. d. deutsch. Gesellsch. f. Chir., 1923.

The bloodless treatment of fractures. PORT. 47. Versamml. d. deutsch. Gesellsch. f. Chir., 1923.

The present status of nail extension. KLAPP. 47. Versamml. d. deutsch. Gesellsch. f. Chir., 1923.

Early mobilization in the treatment of fractures. H. C. SALTZSTEIN. J. Michigan State M. Soc., 1923, xxii, 299.

The longevity of plates and other foreign bodies in the treatment of fractures of long bones. M. BEHREND. Atlantic M. J., 1923, xxvi, 585. [493]

Metal plates in fractures of the long bones. A. STILLMAN. Ann. Surg., 1923, lxxviii, 75.

Studies in the processes of healing of fractures. EDEN. 47. Versamml. d. deutsch. Gesellsch. f. Chir., 1923.

Processes of healing in severe complicated fractures. WEINERT. 47. Versamml. d. deutsch. Gesellsch. f. Chir., 1923.

A case of suprasternal luxation. H. BERGER. Muenchen. med. Wchnschr., 1923, lxx, 569.

A case of suprasternal luxation of the clavicle. R. REDI. Policlin., Rome, 1923, xxx, sez. chir., 268.

The technique of reduction of anterior dislocation of the shoulder. DOMINGO PRAT. An. Fac. de med., Univ. de Montevideo, 1923, viii, 301.

The rational treatment of fractures of the upper end of the humerus: report of end-results. J. W. SEVER. J. Am. M. Ass., 1923, lxxx, 1603. [493]

The treatment of fracture of the humerus. C. P. LÓPEZ. Semana méd., 1923, xxx, 1128.

Backward luxation of the os magnum; reduction and recovery. AUVRAY. Bull. et mém. Soc. de chir. de Par., 1923, xlix, 1003.

Indirect fractures of the vertebræ. RADMANN. Beitr. z. klin. Chir., 1923, cxxix, 466.

The problem of healing in old congenital dislocations of the hip. C. DEUTSCHLAENDER. Ztschr. f. orthop. Chir., 1923, xliii, 217.

The late results of the reduction of congenital dislocation of the hip. E. E. ANDERSEN. Bibliot. f. Læger, 1922, cxiv, 401. [494]

Anterior dislocation of the distal epiphysis of the femur. T. WEST. Am. J. Roentgenol., 1923, x, 519.

The genesis of Steida's fracture. M. P. SCHUELLER and S. WEIL. Beitr. z. klin. Chir., 1923, cxxix, 71.

A preliminary report regarding a new method of treating fractures of the neck of the femur. E. D. MARTIN and A. C. KNIGHT. N. Orleans M. & S. J., 1923, lxxv, 710. [494]

Fractures of the femur in children. C. G. BURDICK and I. E. SIRIS. Ann. Surg., 1923, lxxvii, 736. [494]

The treatment of recurrent patellar luxation. FRANGENHEIM. 47. Versamml. d. deutsch. Gesellsch. f. Chir., 1923.

The open treatment of fractures of the femur. C. E. PHILLIPS. California State J. M., 1923, xxi, 339.

Fracture of the patella. J. L. AUGUSTINE. J. Iowa State M. Soc., 1923, xiii, 339.

A case of dislocation of the patella outward, secondary to osteomyelitis of the femur. H. A. T. FAIRBANK. Proc. Roy. Soc. Med., Lond., 1923, xvi, Sect. Orthop., 47.

The near normal restoration of a limb afflicted with the disabling consequence of an old Pott's fracture. F. REDER. Surg., Gynec. & Obst., 1923, xxxvii, 82.

Fracture of the sustentaculum tali. A. MOUCHET. Bull. et mém. Soc. de chir. de Par., 1923, xlix, 843.

Fractures of the fifth metatarsal. F. CHRISTOPHER. Surg., Gynec. & Obst., 1923, xxxvii, 190.

Orthopedics in General

The scope of orthopedic surgery in a general hospital. S. W. BOORSTEIN. Am. J. Surg., 1923, xxxvii, 188.

The causes of chronic backache. W. E. SHACKLETON. Illinois M. J., 1923, xlv, 36. [495]

Physiotherapy in orthopedics. C. R. BROOKS. N. York M. J. & Med. Rec., 1923, cxviii, 22.

SURGERY OF THE BLOOD AND LYMPH SYSTEMS

Blood Vessels

Extravisceral and intravisceral collateral circulation. A. MELNIKOFF. Arch. f. klin. Chir., 1923, cxxiv, 120.

Methods of demonstrating the circulation in general as applied to a study of the renal circulation in particular. F. HINMAN, D. M. MORISON and R. K. LEE-BROWN. J. Am. M. Ass., 1923, lxxxi, 177.

Microscopic observations of the capillaries. A. STERN. Arch. f. Gynaek., 1923, cxviii, 410.

Microscopic studies of the capillaries. LINZENMEIER and HAGGE. Arch. f. Gynaek., 1923, cxviii, 398.

A case of cerebral aneurism simulating meningitis. S. GILLIES. Med. J. Australia, 1923, ii, 37.

A true spontaneous aneurism of the left common carotid artery, the size of a goose-egg, which was cured by total extirpation; rapid disappearance of severe brain dis-

turbances following the operation. E. GLASS. Arch. f. klin. Chir., 1923, cxxiii, 502. [496]

A large aneurism of the aortic arch opening into the pericardium. GRENET and PEIGNAUX. Bull. et mém. Soc. méd. d. hôp. de Par., 1923, 3s. xxxix, 1042.

Aneurism of the ulnar artery presenting the syndrome of Volkmann's ischæmic contracture. DESPLAS and BAUDOUN. Bull. et mém. Soc. de chir. de Par., 1923, xlix, 964.

Calcareous degeneration of the dorsal and lumbar aortæ as a cause of backache. J. RIDLON and E. J. BERKHEISER. J. Am. M. Ass., 1923, lxxx, 1831. [496]

Ligation of common iliac with a fascial strip for aneurism. J. DOUGLAS. Ann. Surg., 1923, lxxvii, 630. [496]

Three cases of embolectomy. P. HAEGSTROEM. Upsala Läkaref. Foerh., 1922, xxviii, 107. [497]

Anomalies of the dorsalis pedis artery. A. CATTERINA. Arch. ital. di chir., 1923, vii, 269.

The histopathology and etiology of varicose veins. B. B. NICHOLSON. *Arch. Surg.*, 1923, vii, 47.

Kinesitherapy in the treatment of phlebitis of the lower limbs. P. DESFOSSES. *Presse méd., Par.*, 1923, xxxi, 169. [497]

The physiology of an arteriovenous fistula. E. HOLMAN. *Arch. Surg.*, 1923, vii, 64.

Simultaneous ligation of a vein and artery: an experimental study. B. BROOKS and R. A. MARTIN. *J. Am. M. Ass.*, 1923, lxxx, 1678. [497]

A contribution to the surgery of the blood vessels. F. GOYANES. *Prog. de la clin., Madrid*, 1923, xxv, 630.

Blood and Transfusion

The inter-relationship of blood fat and blood sugar. T. H. OLIVER and A. HAWORTH. *Lancet*, 1923, ccv, 114.

The effect of the blood-sugar level on adrenal secretion and sympathetic activity—a preliminary note. W. B. CANNON and S. W. BLISS. *Boston M. & S. J.*, 1923, clxxxix, 141.

Blood concentration changes in extensive superficial burns and their significance for systemic treatment. F. P. UNDERHILL, G. L. CARRINGTON, R. KAPSINOW, G. T. PACK, and others. *Arch. Int. Med.*, 1923, xxxii, 31.

Protein antibodies in the blood and the clinical reaction to peptone. A. VASSALLO. *Arch. di ostet. e ginec.*, 1923, xvii, 164, 193.

Congenital hæmolytic jaundice. F. P. WEBER. *Proc. Roy. Soc. Med., Lond.*, 1923, xvi, Sect. Study Dis. Child., 66.

A case of permanent polycythæmia after removal of the spleen. G. MATOLAY. *Orvosi hetil.*, 1922, lxvi, 379. [498]

Arneth's formula in the leucocytosis of suppurative processes. E. PERITI. *Policlin., Rome*, 1923, xxx, sez. prat., 721.

Observations on blood-pressure determinations in operations with novocaine-adrenalin anaesthesia. O. WIEMANN. *Deutsche Ztschr. f. Chir.*, 1923, clxxviii, 268.

Prolonged intravenous infusion and the clinical determination of venous pressure. W. G. PENFIELD and D. TEPLITSKY. *Arch. Surg.*, 1923, vii, 111.

The effect of drugs on blood agglutinins. D. M. SIPERSTEIN and A. L. KVENBERG. *Am. J. Dis. Child.*, 1923, xxvi, 65.

Further results of attempts to influence hæmagglutination groups. T. DIEMER. *Mitt. a. d. Grenzgeb. d. Med. u. Chir.*, 1922, xxxv, 464. [498]

A gravity method of blood transfusion. T. L. FISK. *N. York M. J. & Med. Rec.*, 1923, cxviii, 98. [498]

Blood transfusion: a study of 245 cases. G. H. COPHER. *Arch. Surg.*, 1923, vii, 125.

The transfusion of unmodified blood. O. A. BRINES. *Arch. Surg.*, 1923, vii, 306.

Clinical and experimental research in blood transfusion. L. NUERNBERGER. *Zentralbl. f. Gynaek.*, 1922, xlv, 1945. [498]

Autotransfusion. L. E. BURCH. *Surg., Gynec. & Obst.*, 1923, xxxvi, 811. [499]

Incidents and accidents in autohæmotherapy. F. MOUTIER and J. RACHET. *Presse méd., Par.*, 1923, xxxi, 708.

Citrate versus unmodified blood transfusion. M. LEDERER. *Surg., Gynec. & Obst.*, 1923, xxxvii, 221.

The transfusion of blood. H. S. BLACK. *Internat. J. Med. & Surg.*, 1923, xxxvi, 338.

The effect of transfusion of portal blood in relation to hæmoclasic crises. A. TOMMASELLI. *Riforma med.*, 1923, xxxix, 651.

Fatal anaphylaxis following blood transfusion. G. L. CARRINGTON and W. E. LEE. *Ann. Surg.*, 1923, lxxviii, 1.

Hæmorrhagic diathesis after blood transfusion. H. HERRMANN. *Med. Klin.*, 1923, xix, 722.

Hæmorrhagic purpura. H. Z. GIFFIN and J. K. HOLLOWAY. *Med. Clin. N. Am.*, 1923, vii, 241.

The control of parenchymatous bleeding. ALBRECHT. 47. *Versamml. d. deutsch. Gesellsch. f. Chir.*, 1923.

Experimental research in hastening blood coagulation. K. KAYSER. *Verhandl. d. deutsch. Gesellsch. f. inn. Med.*, 1922, p. 322. [499]

Studies in exhaustion: hæmorrhage. G. W. CRILE. *Arch. Surg.*, 1923, vii, 154.

Lymph Vessels and Glands

The lymphatic route between the intestines and lung. G. MOSCATI. *Riforma med.*, 1923, xxxix, 539.

A simple classification of lymph-gland enlargements based upon glands removed for diagnosis. H. FOX and D. L. FARLEY. *Am. J. M. Sc.*, 1923, cxxvi, 170.

Tuberculous lymphadenitis; its significance and surgical treatment. E. G. BECK. *Surg. Clin. N. Am.*, 1923, iii, 1145.

The surgical significance of mesenteric lymphadenitis. L. FREEMAN. *Surg., Gynec. & Obst.*, 1923, xxxvii, 149.

SURGICAL TECHNIQUE

Operative Surgery and Technique; Postoperative Treatment

Common-sense standardization versus tradition and routine in the surgical care of the patient. W. KELTON. *Northwest Med.*, 1923, xxii, 246.

Paraffin-wax dressings. L. D. McMILLAN. *J. Am. M. Ass.*, 1923, lxxi, 548.

The restoration of the burnt child. V. P. BLAIR. *South. M. J.*, 1923, xvi, 522. [500]

The surgical treatment of burn scars. G. W. PIERCE. *Surg. Clin. N. Am.*, 1923, iii, 841. [501]

Skin transplantation on granulating wounds by the Reverdin-Halsted method. K. SCHLAEFFER. *Beitr. z. klin. Chir.*, 1923, cxxix, 162.

Recognition and treatment of postoperative complications. BAILEY. *J. Missouri State M. Ass.*, 1923, xx, 285.

The cause of postoperative fever. R. BOTTESELLE. *Policlin., Rome*, 1923, xxx, sez. chir., 352.

Postoperative eventration. A. ZENO. *Semana méd.*, 1923, xxx, 9.

Postoperative tetanus. Also a contribution to the casuistics of congenital mesenteric gaps and extensive resections of the small intestine. K. WOHLGEMUTH. *Arch. f. klin. Chir.*, 1923, cxxiii, 409.

Antiseptic Surgery; Treatment of Wounds and Infections

Lacerated wounds. S. W. HOBSON. *Internat. J. Med. & Surg.*, 1923, xxxvi, 300.

A portable irrigation apparatus for the treatment of wounds with liquid antiseptics. B. DOUGLAS. *J. Lab. & Clin. Med.*, 1923, viii, 684.

The effect of hypertonic salt solution on granulation tissue. V. VON GAZA. *Zentralbl. f. Chir.*, 1923, l, 858.

The treatment of carbuncle. E. L. MITCHELL. *Illinois M. J.*, 1923, xlv, 41.

- The treatment of carbuncle with the actual cautery. W. E. MOWERY. *Am. J. Surg.*, 1923, xxxvii, 170.
- Bilateral iliac abscess treated by oxygen inflation. W. R. STEWART. *Edinburgh M. J.*, 1923, n.s. xxx, 281.
- Tetanus. N. SPIEGEL. *Vereoeffentl. a. d. Kriegs- u. Konstitutionspath.*, 1922, iii, 5. [501]
- The treatment of tetanus. A. A. HEROLD. *N. Orleans M. & S. J.*, 1923, lxxv, 88.
- The combination treatment of tetanus. A. BUZZELLO. *Ztschr. f. aerztl. Fortbild.*, 1922, xix, 427. [501]

Anæsthesia

- Psychonarcosis in obstetrical, gynecological, and surgical procedures. H. HEGEWALD. *Beitr. z. klin. Chir.*, 1923, cxxviii, 766.
- Observations on anæsthesia, with a report of 1,500 consecutive cases. B. RAPOPORT. *Boston M. & S. J.*, 1923, clxxix, 169.
- General anæsthesia. C. S. GISCOSBE. *J. Nat. M. Ass.*, 1923, xv, 104.
- The effects of vagal trauma on the anæsthetized patient. C. L. HEWER. *Proc. Roy. Soc. Med., Lond.*, 1923, xvi, Sect. Anæ., 7. [502]
- Anoxæmia during anæsthesia. N. KLEIN. *Texas State J. M.*, 1923, xix, 249.
- Narcosis and lecithin. K. TITTEL. *Deutsche med. Wchnschr.*, 1923, xlix, 585.
- Ethyl chloride as an anæsthetic for minor operations in children. S. F. ROSE. *Lancet*, 1923, cciv, 1258. [502]

- Two new anæsthetics: ethylin and acetylene. L. CHEINISSE. *Presse méd., Par.*, 1923, xxxi, 596.
- The provision for expiration in endotracheal insufflation anæsthesia. I. W. MACILL. *Lancet*, 1923, ccv, 68.
- Spinal anæsthesia with stovaine. C. LICINI. *Policlin.*, Rome, 1923, xxx, sez. prat., 767.
- Spinal and caudal anæsthesia. J. T. CASE. *Surg., Gynec. & Obst.*, 1923, xxxvii, 104.
- Spinal anæsthesia: the disadvantages of the intrarachnoid injection of caffeine. P. GUIBAL. *Presse méd., Par.*, 1923, xxxi, 581.
- Experiences with splanchnic anæsthesia. E. KUTSCHALLISSBERG. *Wien. klin. Wchnschr.*, 1923, xxxvi, 216. [502]
- Rectal anæsthesia. VON LOBMAYER. 47. *Versamml. d. deutsch. Gesellsch. f. Chir.*, 1923.
- Rectal anæsthesia. W. BRYAN. *Surg., Gynec. & Obst.*, 1923, xxxvii, 107.
- Some of the factors upon which the successful use of local anæsthesia depends. R. E. FARR. *Illinois M. J.*, 1923, xlv, 9; *Canadian M. Ass. J.*, 1923, xiii, 507.
- The toxicity of cocaine as influenced by the rate of absorption and the presence of adrenalin. E. L. ROSS. *J. Lab. & Clin. Med.*, 1923, viii, 656.

Surgical Instruments and Apparatus

- A modification of the ordinary apparatus for proctoclysis. G. BOTTARO. *Policlin.*, Rome, 1923, xxx, sez. prat., 728.
- The spot-light in surgery. J. G. R. MANWARING. *Surg., Gynec. & Obst.*, 1923, xxxvii, 86.

PHYSICO-CHEMICAL METHODS IN SURGERY

Roentgenology

- The use and abuse of the X-rays. L. H. KERR. *Kentucky M. J.*, 1923, xxi, 364.
- X-rays and X-ray apparatus. J. K. ROBERTSON. *J. Radiol.*, 1923, iv, 233.
- Practical roentgen-spectrometry and its physical basis. K. STAUNIG. *Am. J. Roentgenol.*, 1923, x, 479. [503]
- Some X-ray problems of the general practitioner. F. P. LLOYD. *Canadian Pract.*, 1923, xlviii, 260.
- Recent developments in protective methods and appliances. C. F. BURNAM and G. E. WARD. *Am. J. Roentgenol.*, 1923, x, 625.
- The protection of the radiologist in modern therapy. F. GARCÍA DONATO and V. GARCÍA DONATO. *Prog. de la clin.*, Madrid, 1923, xxv, 731.
- The roentgenographic study of the mucosa. R. A. RENDICH. *Am. J. Roentgenol.*, 1923, x, 526.
- An experimental contribution to the problem of the growth-stimulating effect of the roentgen rays in normal human tissues. A. SIMONS. *Fortschr. a. d. Geb. d. Roentgenstrahlen*, 1923, xxx, 300. [503]
- Sterility and the X-rays. J. BÉLOT. *Presse méd., Par.*, 1923, cxxxi, 642.
- The present status of radiotherapy. H. W. VAN ALLEN. *Boston M. & S. J.*, 1923, clxxix, 5.
- The present status of radiation therapy, with case reports. J. T. STEVENS. *J. Radiol.*, 1923, iv, 239.
- The problem of dosage in radiation therapy. R. BASSI. *Actinoterapia*, 1923, iii, 131.
- The principles of deep X-ray therapy. J. ROEMER. *J. Med. Soc. N. Jersey*, 1923, xx, 255.
- The efficiency of radiation therapy. U. V. PORTMANN. *J. Lab. & Clin. Med.*, 1923, viii, 716.
- A note on the discrepancy in the values of secondary voltage given by the spectrometer and the equivalent

- spark-gap. W. E. SCHALL. *Arch. Radiol. & Electrotherapy*, 1923, xxviii, 59.
- The X-ray treatment of tumors. E. L. JENKINSON. *J. Radiol.*, 1923, iv, 229. [503]
- The influence of X-ray therapy on benign and malignant growths. G. SCHWARTZ. *Am. J. Roentgenol.*, 1923, x, 622.
- The X-ray in the treatment of cancer. D. D. TALLEY, JR. *South. M. & S.*, 1923, lxxxv, 404; *Virginia M. Month.*, 1923, 1, 330.
- Roentgen absorption in the blood and extracorporeal irradiation of the circulation in the treatment of cancer. H. PICARD. *Strahlentherapie*, 1922, xiv, 467. [504]
- High-voltage roentgen-ray therapy. S. MOORE. *J. Am. M. Ass.*, 1923, lxxxi, 269.
- The present mode of roentgen-ray therapy in deep-seated lesions. F. W. O'BRIEN. *Boston M. & S. J.*, 1923, clxxix, 1.
- A practical method to determine the correct X-ray dose in high-voltage treatment. H. HOLFELDER. *N. York M. J. & Med. Rec.*, 1923, cxviii, 35.
- Measurements on two American deep-therapy machines, with special reference to the Duane method. G. E. PFAHLER. *J. Radiol.*, 1923, iv, 225. [504]
- The technique of deep surgical X-ray therapy. O. JUENGLING. *Strahlentherapie*, 1923, xiv, 800.
- A case of death resulting from rupture of the intestine after deep irradiation by the roentgen-rays; this being at the same time a critical report regarding the effect of the radio-silex apparatus. C. FRIED. *Strahlentherapie*, 1922, xiv, 688.
- Roentgen injury. L. HAAS. *Wien. klin. Wchnschr.*, 1923, xxxiv, 128.
- The roentgen-ray ulcer and its treatment. P. P. GORTHARDT. *Fortschr. a. d. Geb. d. Roentgenstrahlen*, 1922, xxix, 746. [505]

Radium

- A report on radium therapy. E. J. ANGLE and L. J. OWEN. Nebraska State M. J., 1923, viii, 236.
- The results of skin tests to determine an objective dose for radium radiations. A. L. DEAN, JR. Am. J. Roentgenol., 1923, x, 654.
- A radium applicator for small lesions. N. T. BEERS. Am. J. Roentgenol., 1923, x, 643.
- The radium treatment of cancer. M. H. BIGGS. South. M. & S., 1923, lxxxv, 408.
- The progress and tendencies in the radium treatment of cancer. C. REGAUD. Bruxelles-méd., 1923, iii, 838.
- Nomogram for the determination of radium skin doses. E. H. QUINBY. Am. J. Roentgenol., 1923, x, 574.

Miscellaneous

- The treatment of gonococcal infection by diathermy. E. P. CUMBERBATCH and C. A. ROBINSON. Brit. M. J., 1923, ii, 54.
- Discussion on medical diathermy. E. P. CUMBERBATCH, C. A. ROBINSON, F. H. HUMPHRIS, and others. Brit. M. J., 1923, ii, 311.

- Radiant light and heat in orthopedic conditions. H. W. FRAUENTHAL. Am. J. Clin. Med., 1923, xxx, 474.
- The therapeutics of radiant light and heat. W. B. SNOW. Am. J. Clin. Med., 1923, xxx, 469.
- Artificial heliotherapy. DANZIN. Arch. méd. belges, 1923, lxxvi, 303.
- The application of heliotherapy. P. F. ARMAND-DE-LILLE. Bull. et mém. Soc. méd. d. hôp. de Par., 1923, 38, xxxix, 1015.
- Modern methods of hydrotherapy. C. POPE. N. York M. J. & Med. Rec., 1923, cxviii, 44.
- Physical therapy. J. H. BURCH. N. York M. J. & Med. Rec., 1923, cxviii, 4.
- Physiotherapy. N. E. TITUS. N. York M. J. & Med. Rec., 1923, cxviii, 1.
- The urgent need for a greater use of physical therapy by internists. J. GUTMAN. N. York M. J. & Med. Rec., 1923, cxviii, 13.
- The physiotherapy clinic—a necessity of the modern hospital. R. KOVACS. N. York M. J. & Med. Rec., 1923, cxviii, 10. [505]
- The problem of the physiotherapy aide. A. B. HIRSH and E. WELLINGTON. N. York M. J. & Med. Rec., 1923, cxviii, 8.

MISCELLANEOUS**Clinical Entities—General Physiological Conditions**

- Studies in experimental traumatic shock. VIII. The influence of morphine on the blood pressure and alkali reserve in traumatic shock. M. CATTELL. Arch. Surg., 1923, vii, 96.
- Early and late lesions due to electric injuries. O. J. FAY. J. Iowa State M. Soc., 1923, xiii, 239. [506]
- Ischæmic fat necrosis. C. E. FARR. Ann. Surg., 1923, lxxvii, 513. [506]
- Serologic and clinical methods of diagnosing echinococcus disease. G. BLUMENTHAL and E. UNGER. Deutsche med. Wchnschr., 1923, xlix, 512.
- Multiple suppurative hydatid cysts. R. DUPONT. Bull. et mém. Soc. de chir. de Par., 1923, xlix, 847.
- Gonorrhoeal keratodermia. A. A. DE MATTA. Brazil med., 1923, xxxvii, 20.
- Coccidioidal granuloma. R. G. TAYLOR. Am. J. Roentgenol., 1923, x, 551.
- The etiology of kala azar and tropical sore. E. BLACKLOCK. Lancet, 1923, ccv, 273.
- Melanotic tumors (Collective Review). L. CEVARIO. Rassegna internaz. di clin. e terap., 1923, iv, 294.
- Desmoid tumors: a report of thirty-one cases. R. W. NICHOLS. Arch. Surg., 1923, vii, 327.
- Multiple myeloma of the plasma-cell type. A. C. WOOD and B. LUCKE. Ann. Surg., 1923, lxxviii, 14.
- Cell ionization and its relation to malignant neoplasms. D. C. A. BUTTS. N. Y. M. J. & Med. Rec., 1923, cxviii, 89.
- The quantitative relations between the factors which cause cancer, and the rapidity and frequency of the cancerous change. L. LOER. Presse méd., Par., 1923, xxxi, 709.
- Experimental studies of carcinoma tissue. O. WARBURG and S. MINAMI. Klin. Wchnschr., 1923, ii, 776.
- Experimental tar cancer: an attempt to determine the character and action of the cancer-forming factors. R. BIERICH. Klin. Wchnschr., 1923, i, 2272. [506]
- Refractometric serum investigations on carcinoma and predisposition to it. K. NATHER and V. ORATOR. Mitt. a. d. Grenzgeb. d. Med. u. Chir., 1922, xxxv, 611. [507]
- The recognition of the regional recurrence of carcinoma in the skin. F. FRANKE. Zentralbl. f. Chir., 1923, xlix, 1885. [507]
- Miliary carcinosis: report of a case with necropsy study. E. H. FUNK and B. L. CRAWFORD. N. York M. J. & Med. Rec., 1923, cxviii, 101.
- The cancer problem. S. MCGUIRE. South. M. & S., 1923, lxxxv, 399.
- The surgical treatment of cancer. R. L. PAYNE. South. M. & S., 1923, lxxxv, 402.
- The etiology of sarcoma. J. PATRICK and J. A. G. BURTON. Glasgow M. J., 1923, n.s. xviii, 8.
- Sarcoma of the back, with a report of three cases. B. H. WAGNON. J. Radiol., 1923, iv, 278.
- Actinomycosis. H. A. BRUCE. Ann. Surg., 1923, lxxviii, 294.
- Actinomycosis of the abdominal wall. H. ALBERT, J. B. HARDY, and J. W. HARRISON. J. Am. M. Ass., 1923, lxxxi, 653.
- The distribution of actinomycosis in the United States. S. H. SANFORD. J. Am. M. Ass., 1923, lxxxi, 655.

General Bacterial, Mycotic, and Protozoan Infections

- The bacteriology of gas edema. K. WOLFF. Veroeffentl. a. d. Kriegs- u. Konstitutionspath., 1922, iii, 1. [507]
- A case of septicæmia due to Friedländer's bacillus. BROUARDEL, RENARD, and BONNOT. Bull. et mém. Soc. méd. d. hôp. de Par., 1923, 3 s. xxix, 990.
- A case of streptococcus viridans septicæmia with recovery. L. ABRAHAMSON. Med. Press, 1923, n.s. cxvi, 54.
- The determination of the virulence of streptococci. C. RUGE. Med. Klin., 1923, xix, 200. [507]
- Diagnosis with tuberculin in surgical tuberculosis. H. FRIEDRICH. Muenchen. med. Wchnschr., 1923, lx, 528.
- The reaction to tuberculin in surgical tuberculosis. A. R. EGANA. Semana méd., 1923, xxx, 1198.
- The surgical treatment of typhoid carriers. GOOD. Schweiz. med. Wchnschr., 1923, liii, 421.
- The surgical treatment of typhoid carriers. C. ARNDT. Schweiz. med. Wchnschr., 1923, liii, 423.

A case of congenital syphilis with ascites. R. C. SPENCE and L. C. TITTLE. *South. M. J.*, 1923, xvi, 512.

Acute poliomyelitis in an adult. W. BERARDINELLI. *Brazil-med.*, 1923, xxxvii, 328.

The treatment of leprosy. R. M. WILSON. *South. M. J.*, 1923, xvi, 507.

Bacteriostasis by a mixture of dyes. J. W. CHURCHMAN. *J. Exper. Med.*, 1923, xxxviii, 1.

A case of actinomycosis with recovery. A. D. BIGLAND and F. C. H. SERGEANT. *Brit. M. J.*, 1923, ii, 61.

Ductless Glands

A case of osteomalacia in the male: a study of the glands of internal secretion. CHABROL and HAGUENAU. *Bull. et mém. Soc. méd. d. hôp. de Par.*, 1923, 3 s. xxxix, 973.

A new case of polyglandular syndrome associated with a severe coeliac neurosis. N. VALOBRA. *Riforma med.*, 1923, xxxix, 723.

Diseases of the ductless glands (Collective review). *Med. Sc. Abst. & Rev.*, 1923, viii, 284.

The experimental basis of endocrine therapy. A. J. CLARK. *Brit. M. J.*, 1923, ii, 51. [507]

Surgical Pathology and Diagnosis

A new technique for the application of the reduced silver-nitrate method of Cajal to sections of the retina. F. F. BALBUENA. *Arch. Ophth.*, 1923, lii, 358.

Cellular immunity and disposition to disease. A. THEILHABER and H. RIEGER. *Deutsche Ztschr. f. Chir.*, 1922, clxxiii, 78.

The chemical pathology of pyloric occlusion in relation to tetany: a study of the chloride, carbon dioxide, and urea concentrations in the blood. H. A. MURRAY, JR. *Arch. Surg.*, 1923, vii, 166.

Experimental Surgery

The value of animal experimentation to the medical profession and to the people. V. C. VAUGHAN. *Boston M. & S. J.*, 1923, clxxxix, 62.

The use of methylene blue to test organic reduction: a report of studies on its circulation and elimination. E. SCHULMANN and L. J. BESANÇON. *Presse méd., Par.*, 1923, xxxi, 553.

A study of the viability of bone after removal from the body. S. L. HAAS. *Arch. Surg.*, 1923, vii, 213. [508]

INTERNATIONAL ABSTRACT OF SURGERY

DECEMBER, 1923

ABSTRACTS OF CURRENT LITERATURE SURGERY OF THE HEAD AND NECK

HEAD

**Albee, F. H.: Ununited Fracture of the Lower Jaw
With or Without Loss of Bone.** *Surg. Clin. N.
Am.*, 1923, iii, 301.

Albee gives an exhaustive résumé of the literature on maxillary and mandibular fractures from Hippocrates to the present time.

He emphasizes the necessity for teamwork between the surgeon and dentist.

The same principles that apply elsewhere in orthopedic work apply in fracture of the jaw. Accurate apposition of the fragments and immobility until they have united are essential. No attempt should be made to sew the soft parts to close the gap until union of the fractured parts in correct relation is well under way and permanent splints have been adjusted. With the co-operation of the prosthetic dentist, an efficient interdental splint should be applied as soon after the injury as possible.

In extensive loss of bone, difficult plastic surgical work is necessary. Pedicle flaps are not practical

because the bone cannot be molded accurately and the graft is too thin. Several writers are quoted who claim that in mandibular pseudarthrosis the osteoperiosteal bone graft has not been successful. Chief among the causes of failure are the shaping of the graft with the mallet and chisel, the elapse of too much time between the cutting and application of the graft, and lack of dexterity.

The author uses a number of motor-driven tools of his own design, and usually obtains the graft from the tibia or ilium. When there is loss of soft

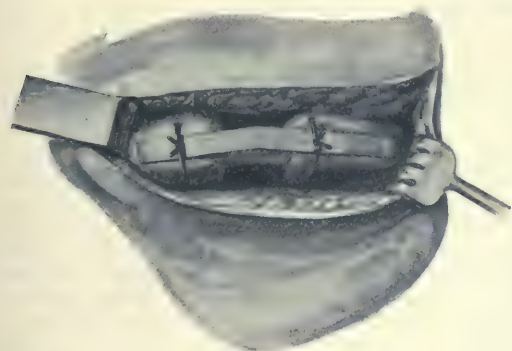


Fig. 1. Showing the inlay bone graft in place, held by kangaroo-tendon ligatures. Note its slight angulation in contour which adapts it to the jaw fragments, restoring over 1 in. of bone loss.

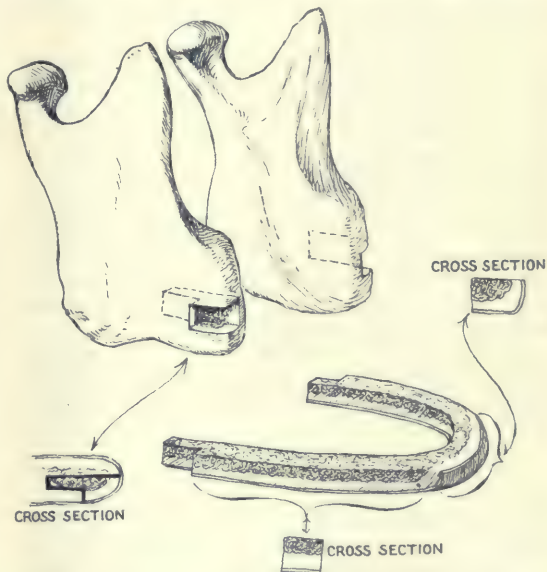


Fig. 2. Showing the jaw fragments prepared for the reception of the large U-shaped graft from the wing of the ilium, which restored the loss of substance in the lower jaw from the last molar on one side to the back of the last molar on the other. Note the shoulders which were cut in the ends of the grafts to insure an accurate fit of the graft with the host fragments.

tissues, he always corrects this first by means of pedicle flaps, delaying the bone grafting until after the soft tissues have taken hold.

The general technique of the operation is described, and several cases are reported.

I. E. BISHKOW, M.D.

EYE

Allport, F.: Corneal Injuries in Industrial Occupations. *Illinois M. J.*, 1923, xlv, 128.

The corneal injuries most frequently seen in industrial work are due to small foreign bodies which are lodged in the cornea by the primary force or become rubbed in.

Such bodies should be removed under strictly aseptic conditions, with local anæsthesia, concentrated illumination, and the use of strong magnifying glasses. The location of the particle and its depth should be ascertained. Particles lying loose can be wiped off with a cotton applicator, but those embedded must be removed with an instrument. In instrumental removal the following rules should be observed:

1. Get the instrument under the foreign body and lift it out.
2. Keep the injury of the cornea minimal.
3. Work in ample and concentrated illumination.

Staining with fluorescein is of aid, especially when the particle is very small. The eschar often seen after the removal of a foreign body should also be removed. Care must be taken not to mistake a pigment spot on the iris for a foreign body.

If the corneal injury is slight, irrigation, the use of 20 per cent argyrol and a bichloride ointment, and observation for a day or two are all that is necessary, but if there is considerable corneal injury or if infection is present, it is advisable gently to cauterize the pathologic tissue with carbolic or, when the infection is marked, use the cauterizing cotton wrapped around a toothpick as a curette. Then, in addition to the irrigation and the use of argyrol and ointment, atropine should be instilled and a pad applied. The eye should be kept at rest until the cornea is completely healed.

In cases of deep sloughing ulcers followed by hypopyon, etc., a search for external causes should be made. Syphilis, kidney lesions, diabetes, disease of the teeth, tonsils or sinuses, lachrymal disease, etc., are some of the important conditions to be looked for and corrected. The diet should be regulated as to overfeeding, and about 120 gr. of sodium salicylate should be given every twenty-four-hour period. In the presence of trachoma, brushing the everted eyelids with boric acid powder two or three times a week is beneficial. Caustics are contra-indicated. So-called intensive treatment three times a day may help. One drop of 1 per cent atropine should be dropped into the eye every five minutes six times, the solution being prevented from running into the nose by pressure on the tear duct. In the meantime, heat as strong as bearable should be

applied. At the end of the half-hour period, dionin strong enough to produce an oedema of the conjunctive—beginning with a 5 per cent solution and increasing, as necessary, to the powder—should be used. From ten to fifteen minutes later the treatment should be completed with the use of atropine and mercurial ointment. In some cases of hypopyon the anterior chamber must be opened and washed out. Occasionally, in spite of treatment, the eye is lost because of general panophthalmitis, and enucleation becomes necessary.

The author does not use the actual electric cautery as much today as formerly because of the ease of perforation. Prince's "pasteurizer" and subconjunctival injections of bichloride, salt, dionin, milk, etc. he has found disappointing.

MANFRED R. WALTZ, M.D.

Driver, W. E.: The Growing Importance of Mapping Fields of Vision. *Virginia M. Month.*, 1923, 1, 293.

Mapping of the fields of vision, if done with painstaking care, will be of great aid in diagnosis and in the decision as to the type of treatment. It is necessary to map out, not only the form fields, but also the color fields and blind spots. Frequently these give very early evidence of organic lesions.

THOMAS D. ALLEN, M.D.

Bailey, J. H.: The Surgical Anatomy of the Lachrymal Sac. *Am. J. Ophthalm.*, 1923, 3 s. vii, 665.

The author describes in considerable detail the bony framework and the muscular and ligamentous coverings of the lachrymal sac and then discusses some of the difficulties that confront the surgeon in doing an extirpation. The two most important difficulties are the locating of the sac and the control of hæmorrhage. A skin incision is described which permits access to the sac without section of certain anastomosing blood vessels. The difference in the appearance of the lachrymal fascia and the lachrymal sac is largely a difference of color; the former is white and the latter bluish. Great care should be taken not to enter the orbit.

THOMAS D. ALLEN, M.D.

Peter, L. C.: Slit-Lamp Studies of Hernia of the Vitreous: Its Relation to Cataract Operations. *Am. J. Ophthalm.*, 1923, 3 s. vii, 644.

This article is based on slit-lamp studies of hernia of the vitreous following the extraction or spontaneous absorption of cataracts. In two cases of traumatic cataract the vitreous could be seen prolapsed into the anterior chamber. Four cases of hernia of the vitreous are reported (one in detail), and four cases of extraction, two of which were operated upon by Barraquer, one by Smith, and one by the author by the Smith method.

While the external appearance of the eye operated upon by the Barraquer method was perfect, the slit lamp revealed hernia of the vitreous and many opacities. In the cases operated upon by the Smith method the external appearance was poor but the

iris was not tremulous and the internal conditions were good. The author believes that although discission has been done for years, the possible damage to the vitreous is greater than has been suspected.

VIRGIL WESCOTT, M.D.

Killick, C.: A Series of 100 Cases of Cataract Removed under a Subconjunctival Bridge. *Brit. J. Ophthalm.*, 1923, vii, 320.

Influenced by the work of Terrien and by marked loss of vitreous in two successive cases in his own practice, the author changed his technique in cataract extractions to the use of a subconjunctival bridge.

The method was advocated by Desmarres in 1855 but was later abandoned even by its originator. In 1898, Pansier, and in 1899, Vacher, revived it, but it was not generally accepted. More recently, Bajardi, Lundsgaard, and Cridland have advocated it. All have reported very excellent results, especially as to complicating infections, renversement of the corneal flap, and the loss of vitreous, but admit that it is somewhat difficult.

The author's method is copied from that of Terrien whose technique was very similar to that of Desmarres. The incision is made with puncture and counter-puncture at the limbus and the section is completed with a conjunctival flap which is not cut through but left as a bridge. This bridge varies in width; the average width is about 4 mm. When the section has been completed the flap is turned backward and made to glide beneath the conjunctiva as far as possible, as the longer the bridge the easier the extraction and the broader the bridge the better the coaptation of the wound lips. Care must be taken to keep the knife edge from touching the speculum. The ordinary technique is then followed except that everything is done subconjunctivally. If the combined extraction is performed, the author prefers the inside of the right eye for the coloboma and the outer side of the left eye. In selected cases simple extraction is preferred.

After the capsule has been opened with a cystotome, the ease of the extraction depends upon the kind of lens and, to a great extent, upon the bridge. Depressing the upper lip of the wound with a spatula to assist in the delivery of the lens is unnecessary as simple pressure is sufficient. As the bridge will not permit overgaping of the wound, considerable pressure may be exerted. After the lens has started, gentle guidance upward and laterally is all that is necessary. Once in a while division of the bridge may be indicated. The operation is concluded in the usual way by smoothing out the iris and instilling atropine in cases of iridectomy and eserine in the others. A single or bilateral pad is applied and the patient allowed to walk back to his room from the operating room. At the end of twenty-four hours, the eye is examined and the dressings are changed. The patient is allowed to get up in from twenty-four hours to three days, and glasses are given on the fifth, sixth, or seventh day.

The advantages of the operation are that it safeguards against infection and loss of vitreous and that the surgeon has complete control of the eye when the bridge has been fashioned. The disadvantages are that the bridge constitutes a complication and makes the operation less easy. In none of the author's cases was there delayed healing, excessive hæmorrhage into the anterior chamber, or prolapse of the iris.

The one contra-indication to the operation is a narrow palpebral fissure. For a fully ripe cataract of the ordinary type it is almost ideal.

MANFORD R. WALTZ, M.D.

Lippincott, J. A.: Local Anæsthesia an Adjuvant in Ocular Therapeutics: Is the Process of Absorption under Nerve Control? *Am. J. Ophthalm.*, 1923, 3 s. vii, 631.

Lippincott reports two cases in which the pupil failed to dilate in the presence of corneal ulceration until, in one case the mydriatic was heated to the boiling point and in the other the cornea was anæsthetized with cocaine before the instillation of atropine. He reports also five of a series of cases in which he used a non-mydriatic anæsthetic in one eye before instilling a mydriatic in both eyes. The pupil dilated more quickly and to a greater extent in the anæsthetized eye. In five other cases the pupil was dilated with adrenalin and a non-mydriatic anæsthetic was used in one eye.

VIRGIL WESCOTT, M.D.

Cheney, R. C.: The Bactericidal Power of Argyrol. *Am. J. Ophthalm.*, 1923, 3 s. vii, 648.

The author found by experiments that argyrol is most effective as a bactericidal agent when the bacteria are well separated, and is least effective when they are clumped together and surrounded by mucus or pus.

Silver nitrate was found more effective than argyrol.

VIRGIL WESCOTT, M.D.

Grimsdale, H.: Disease of the Retinal Vessels and the Early Signs of Arteriosclerosis in the Eye. *Med. Press*, 1923, n.s. cxvi, 112.

The large number of physiological variations in the fundus oculi must not be mistaken for pathologic changes. Pulsation of the veins occurs in normal persons but pulsation of the arteries indicates general disease, such as aortic insufficiency, or local disease such as glaucoma. The arteries dilate after systole of the ventricles while the veins enlarge just before systole.

The condition of the retinal vessels as seen with the ophthalmoscope is a good indication of the condition of the cerebral vessels. The author divides arterial changes into two groups: those due to increased blood pressure and those due to arteriosclerosis. He believes that retinal hæmorrhage is a sign of general disease of the blood, and that embolism or thrombosis are due to "patchy" arteriosclerosis.

VIRGIL WESCOTT, M.D.

Goss, H. L.: The Effect of Blood Transfusion on the Retinitis of Pernicious Anæmia. *Am. J. Ophth.*, 1923, 38, vii, 661.

Goss draws the following conclusions:

1. Transfusion does not prevent the further occurrence of hæmorrhages in the retina.
2. Transfusion does not cause the retinal hæmorrhages to become absorbed any more rapidly.
3. The remote effect of the transfusion is a gradual lessening of the retinal œdema and a decrease in the tendency toward hæmorrhage.
4. No change occurs in the retina as an immediate effect of transfusion. THOMAS D. ALLEN, M.D.

EAR

Mollison, W. M.: A Case of Vertigo Cured by Opening the External Semicircular Canal. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Otol., 60.

The author reports a case of giddiness and tinnitus in a man aged 42 years which was relieved by opening the semicircular canal. The onset of the giddiness was sudden and the attacks recurred at frequent intervals.

Examination of the ears showed normal membranes. In the right ear the hearing was good, but in the left ear almost absent. There was no spontaneous nystagmus. The caloric responses on both sides were sluggish. Past pointing was good on the right side and absent on the left side. Four weeks after the opening of the left semicircular canal the patient was entirely free from vertigo and could hear a whisper at a distance of 8 ft. from the left ear. Six weeks later the affected ear was found to be deaf.

The operation was performed by opening the mastoid exactly as in an ordinary mastoidotomy, well exposing the aditus region to obtain a good view of the external semicircular canal, and then chipping the canal open. JAMES C. BRASWELL, M.D.

Hubert, L.: A Study of the Mechanism of Pain as Seen in Otological Cases. *Laryngoscope*, 1923, xxxiii, 596.

The author divides pain in otological cases into three types, viz., somatic, autonomic, and psychic.

Somatic pain is caused by irritation of the pain sense organs or the pain nerve fibers of the ear or by irritation of these nerves or closely related nerves distributed to structures some distance from the ear. In the latter instance there is no disease of the ear proper, but only pain in front, within, or behind the ear. In some cases somatic pain may be due to involvement of the sensory ganglia which supply the ear with sensation.

The presence of autonomic pain in or around the ear has not yet been definitely proved. Its existence will depend upon whether or not afferent autonomic fibers are present in the nose, nasopharynx, and buccal cavity.

Psychic pain has its origin in the cerebrum and is referred to the ear, especially to the mastoid region. JAMES C. BRASWELL, M.D.

NOSE

MacPherson, D.: Fibrosarcoma of the Nasopharynx Treated by Operation and Radium. *Laryngoscope*, 1923, xxxiii, 653.

MacPherson reports a case of fibrosarcoma of the nasopharynx in which the swelling extended over the antrum and completely blocked the right side of the nose. The growth was within the antrum but attached to it by only small fibrous trabeculae which were easily broken down by the finger. Its site of origin was the lateral wall of the pharynx and the sphenoid base. It was removed from its attachment by the anterior route of the antrum. The operator was unable to remove its base as it was very firmly attached and the operation was very bloody. The loss of blood necessitated the intravenous administration of saline solution. In the future MacPherson will tie the carotid before attempting an operation of this type.

After the operation approximately 10,000 mgm.-hrs. of radium treatment was given.

One year later the author found a recurrence in the nasopharynx, but he believes that the growth will be controlled by the use of radium.

JAMES C. BRASWELL, M.D.

Loftus, J. E.: Cerebrospinal Rhinorrhœa, with the Report of a Case. *Laryngoscope*, 1923, xxxiii, 617.

Cerebrospinal rhinorrhœa is a rare affection which is characterized by the escape of cerebrospinal fluid into the nose. The literature reports twenty-three cases; the first was described by King in 1834.

The etiology is obscure. The author is of the opinion that there is a congenital defect in the base of the skull and that the embryonic canal may be forced open by sneezing or coughing, a direct communication being thus established between the roof of the nose and the third ventricle.

The chief symptom is the dripping of a clear watery fluid from the nose. This may be intermittent, occurring weekly or monthly. It is most rapid when the head is in the upright position, and the amount is increased when the patient strains or becomes excited. Usually there are associated eye symptoms and symptoms of intracranial pressure.

The diagnosis is based on the dripping from the nose and an examination of the fluid. The fluid is free from taste, smell, and sediment. It contains albumin and globulin in small amounts and a substance which reduces Fehling's solution. Its specific gravity is low.

The prognosis is unfavorable as the condition is usually fatal. There are only two cases on record in which an apparent cure was obtained.

Nothing can be done in the way of treatment. It is not only useless, but even harmful, to check the flow of the fluid. Nasal treatment is contra-indicated. Lumbar puncture has proved unsuccessful.

The author reports in detail a case of cerebrospinal rhinorrhœa in a woman 40 years of age.

JAMES C. BRASWELL, M.D.

MOUTH

Gibbon, J. W.: The Surgery of Harelip and Cleft-Palate Deformities. *South. M. & S.*, 1923, lxxxv, 355.

Harelip and cleft-palate deformities interfere seriously with deglutition and general development. Therefore, operation is followed by marked improvement in the general health as well as in the subject's appearance.

Embryologically, the closure of the lip and palate proceeds from front to back: the lip first, then the alveolus, then the hard palate, and finally the soft palate. By the eleventh week of intra-uterine life, the union of the parts forming the lip, alveolus, and palate is usually complete.

The author believes that if the general condition is satisfactory, harelip should be repaired before the child is 3 months old, and that the bone repair should be completed at the ninth or tenth month. This is in accord with the views held by Berry, New, Richie, Thompson, Roberts, Davis, and others, but contrary to the opinion of Brophy and Blair who believe that the alveolus should be operated upon early.

The general principles underlying harelip and cleft-palate surgery are the maintenance of an adequate blood supply and the prevention of tension on the sutures and sepsis. In operations on the lip the most important points are the prevention of notching, the correction of the widening of the nostrils, and the care of the premaxilla in bilateral clefts.

In the author's opinion, the palate should be operated upon, if possible, at about the eighth or ninth month, and certainly before the child begins to talk.

WILLIAM B. STARK, M.D.

Rhein, M. L.: The Present Status of the Pulp and Root Canal Problem. *N. York M. J. & Med. Rec.*, 1923, cxviii, 148.

The author gives a brief historical review of the failure of the dental profession to solve the root canal problem, pointing out the fact that, in the past, the importance of perfect asepsis and the elimination of infection was not appreciated, and that even today the general practitioner is not treating root canals properly. One explanation is an economic one, as proper treatment requires a great deal of time for the careful removal, in a perfectly sterile field, of every particle of pulp tissue and for perfect filling of the root canal and roentgenograms to check up the progress and results. This renders the expense almost prohibitory to the average person. The only solution may be to refer all root canal operations to the specialist.

The percentage of failure depends upon many conditions, but in the absence of infection a successful result should be obtained in 95 per cent of the cases. When only the pulp is infected and the pericementum is intact, a successful result should be obtained in 80 per cent of the cases. When the pericementum has been destroyed by infection or when previous treatment has failed, the wise operator will

refuse to attempt further treatment, although in a small percentage of cases there is some chance of success.

CHARLES W. FREEMAN, D.D.S.

THROAT

New, G. B.: Congenital Obstruction of the Larynx and Pharynx. *J. Am. M. Ass.*, 1923, lxxxi, 363.

Six cases illustrating different types of congenital obstruction of the larynx and pharynx, a rare condition, are reported. This condition may be due to various causes. One common symptom, respiratory obstruction in the newborn infant, was present in all, and formed the basis for the study.

CASE 1. Congenital laryngeal stridor in a boy 8 weeks old. The laryngeal obstruction was due to the approximation on inspiration of the aryepiglottic folds. The condition did not demand treatment and the child gradually improved.

CASE 2. Congenital middle line or bilateral abductor position of the true cords in a mentally deficient child 10 months old. The obstruction did not require immediate treatment and gradually decreased.

CASE 3. Subglottic laryngeal diaphragm in a child 1 year old. The tracheotomy tube was removed about one year from the time of the original examination, and as no obstruction followed, treatment was considered unnecessary.

CASE 4. Angioma of the larynx in a child 9 months old. The angioma cleared up under radium treatment.

CASE 5. Lingual thyroid in a boy 3½ months old. The typical tumor was found at the base of the tongue. The obstruction was not sufficiently marked to require treatment.

CASE 6. Congenital flaccid tongue and palate in a child 2 months and 3 weeks old. The child could not eat or sleep. On inspiration the tongue was sucked back against the posterior pharyngeal wall, causing partial obstruction, and on expiration the neck ballooned up as the soft palate and tongue approximated. The opening was maintained in the pharynx by the use of a piece of curved celluloid, and the child gradually improved. Ultimately the celluloid appliance was discarded.

No cases were found reported in the literature similar to Cases 2 and 6. It is assumed, therefore, that two additional types of the condition are described in this report.

G. B. NEW, M.D.

Thomson, St. C.: A Laryngeal Case Apparently of Epithelioma (Possibly Syphilis) Completely Healed and Arrested under X-Ray Treatment Without Operation. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Laryngol., 60.

The case reported was that of a man 68 years old. Microscopic examination showed the growth to be an epithelioma. Operation was refused because of the extension of the neoplasm and the patient's age.

The radiation employed was the most penetrating which a 16-in. coil would yield, increasing up to a 10-in. spark and approximately from 130,000 to

150,000 volts. The filtration was 8 mm. of aluminium and a pad on the skin. Twice a week for a month a full dose of the rays was directed to the larynx, first from the left side and then from the right side. Subsequently this was repeated at fortnightly intervals for several months. Altogether, twenty hours of exposure were given from January to November.

OTTO M. ROTT, M.D.

NECK

Hobson, F. G.: A Comparative Study of the Basal Metabolism in Normal Men. *Quart. J. Med.*, 1923, xvi, 363.

Fifty-one male subjects were examined in an attempt to establish a base line for the basal metabolism of normal persons. A very careful check was made on these subjects to establish their normality in relation to their weight, their physical fitness as judged by their vital capacity and pulse response to exercise, the hæmoglobin content of the blood, the blood pressure, the respiratory rate, and the pulse rate while they were lying down. The examinations were made in the post-absorptive state, twelve to fourteen hours after the last meal and after a rest of one to one and a half hours following the walk or bicycle ride to the office; they were made at a room temperature between 16 to 20 degrees C. and when the temperature by mouth was normal. Five of the fifty-one males were rejected as not normal.

The metabolism was calculated by three methods, those of Benedict, DuBois, and Dreyer, and the calculated normal weight was used as well as the actual weight at the time of the experiment. The subjects ranged in age from 9 to 40 years. Most of them were school boys, students, professors, doctors, and laboratory workers.

The conclusions drawn from this investigation were as follows:

1. Dreyer's formula, $\frac{Wn}{CxA \ 0.1333} = K$, n being approximately 0.5 and K equaling 0.1015 in males, expresses the basal metabolism in an extremely satisfactory manner over a wide range of body size and age.

2. A definite and important improvement between calculation and observation is obtained when the calculated normal weight is used for purposes of calculation instead of the observed weight.

3. Healthy persons whose observed weight differs from their calculated weight may have a metabolism which is entirely normal, considered in relation to their calculated or normal weight.

4. From both theoretical and practical standpoints the calculated weight should be employed in calculating the normal basal metabolism.

5. For persons leading a healthy active life with opportunities for physical recreation, the K in Dreyer's formula will be found equal to approximately 0.0990 instead of 0.1015.

6. Dreyer's formula is highly satisfactory from both theoretical and practical standpoints. It is

an improvement upon the methods of Benedict and DuBois in that it holds true over a wider range of age and weight with greater accuracy and is based upon sounder principles.

MARCUS H. HOBART, M.D.

Starlinger, F.: Physico-Chemical Investigations of Thyroid Problems (Physikalisch-chemische Untersuchungen zum Schilddruesenproblem). *Mitt. a. d. Grenzgeb. d. Med. u. Chir.*, 1923, xxxvi, 334

As the existence of a specific internal secretion of the thyroid has not yet been proved, the author studied the blood plasma which, during its passage through the thyroid, would come into closest contact with the hypothetical secretion. All previous studies have been made on the peripheral blood which, of course, shows no purely thyroid-hormone action.

Physico-chemical examination revealed differences in diffusion in the plasma from the thyroid veins and arteries in the sense that in the vast majority of cases the arterial plasma seemed to diffuse less readily than the venous plasma. In a smaller percentage of the cases the findings were just the reverse. Changes in diffusion of the first type indicate clinically, morphologically, and physico-chemically a goiter of hyperfunction, while the lowering of diffusion in the venous plasma is characteristic of goiter of hypofunction. On these grounds the function of the thyroid is conceived to be the breaking down of highly complex protein molecules and the giving off of protein derivatives into the blood stream. The occurrence and degree of this breaking-down process is dependent upon an energetic catalytic agent which does not injure the gland. A specific secretion in a stronger sense is to be denied. The overworking of this function leads to functional hypertrophy and ultimately to the formation of a goiter.

On the basis of this working hypothesis various factors regarded clinically and experimentally as predisposing are explained. The assumption of a specific exogenous toxin for an entire class of goiters seems superfluous. The causes are various endogenous, physiological, and pathological processes which have as a common characteristic a long-continued increase of fibrinogen in the plasma.

HARMS (Z).

Reed, T., and Clay, H. T.: A Survey of Thyroid Enlargement Among the Children of Grand Rapids. *J. Michigan State M. Soc.*, 1923, xxii, 323.

In a survey of the school children of Grand Rapids, numbering 26,215, enlargement of the thyroid gland was found in 30 per cent. Thirty-two per cent of those affected were boys and 67 per cent were girls. The examination consisted of inspection and careful palpation of the thyroid gland, and the application of the swallowing test. The enlargement was graded 1, 2, 3, or 4 according to its extent. Cases of distinct adenoma were graded 5.

The frequency of thyroid enlargement was rather high among high school children, ranging from 39 to 60 per cent in different schools. Two and one-half

times as many girls as boys were found to have a thyroid tumor. The incidence of the condition increased in both sexes from the fifth to the fourteenth year of age. The changes at puberty are perhaps accountable in part for the higher incidence in girls. No cases of exophthalmic goiter were discovered.

While only slight enlargements were found in boys, the disease is more frequent among boys than is generally supposed. The routine administration of 10 mgm. of iodine has been urged by the health authorities as a preventive measure.

WILLIAM J. PICKETT, M.D.

Eggenberger, H.: The Prevention of Goiter and Its Recurrence (Die Verhuetung des Kropfes und des Kropfrezidives). *Schweiz. med. Wchnschr.*, 1923, liii, 245.

In the etiology of goiter a deficiency of iodine plays an important rôle. Iodine undergoes slow metabolism in the organism. Eggenberger estimates this to be 0.0001 gm. daily. The thyroid is an iodine reservoir and iodine is an indispensable inorganic constituent of food. Goiter and cretinism must be regarded as diseases of the thyroid gland due to iodine deficiency. Even minute doses of iodine (one drop of a $\frac{1}{4}$ per cent solution of potassium iodide daily) given over a long period of time have a prophylactic action. Iodine occurs everywhere in nature in minute quantities chemically difficult to detect. The air and water contain a greater quantity the closer the sea is approached. In enclosed areas the iodine content of the air is less than in open areas, as iodine is absorbed by man and by objects. Plants and animal bodies are rich in iodine. Of foodstuffs, eggs, green vegetables, and salt-water fish are particularly rich in iodine. In general, a goiter-free region is one in which there is a surplus of iodine. In Alpine regions there is very little iodine in the water. The small thyroid glands of goiter-free regions contain more iodine than the large ones of goitrous regions. Iodine is best given artificially by adding potassium iodide to the table salt.

In the discussion of this article Henschen emphasized the fact that not all goiters respond to iodine. Some respond much better to calcium chloride, bromine, or silicic acid. Magnesium silicate, calcium lactate, and sodium bromide have proved effective in the treatment of soft goiters and also decrease the size of large goiters. KOENIG (Z).

Hertzler, A. E.: The Nature and Treatment of Interstitial Goiter. *Nebraska State M. J.*, 1923, viii, 261.

Persons with interstitial goiter are nervous and irritable, lose weight and sleep, and suffer with tachycardia and flushing. The pathologic changes in this condition are characterized by an increase in the interstitial cells, flattening of the acini, and a change in the colloid. Function is impaired. The gland somewhat resembles the thyroid at the fourth or fifth year of age.

In an adolescent goiter there is merely an increase in colloid and no change in the cells. In an adenoma there is an increase in epithelium. In secondary degeneration of a colloid goiter the colloid shows a different degeneration and the cells are frankly atrophic.

Interstitial goiter is most common between the eighteenth and thirtieth years of age. The subjects are usually tall slender girls, who become fatigued easily. The metabolic rate is not increased, and eye signs are uncommon. The gland is usually small and somewhat tender. Tuberculosis can be differentiated by the Goetsch test.

As a rule, operation does not give permanently satisfactory results because function is decreased. The author therefore operates only when the gland is very large. He gives bromides to relieve the nervousness and sleeplessness, and iodides to stimulate the gland. Improvement requires many months.

Persons with interstitial goiter should be examined carefully for other pathologic conditions. A large number of them will be found to have a pelvic disorder.

MARCUS H. HOBART, M.D.

Willius, F. A., Boothby, M. W., and Wilson, L. B.: The Heart in Exophthalmic Goiter and Adenoma with Hyperthyroidism, with a Note on the Pathology. *Med. Clin. N. Am.*, 1923, vii, 189.

Much of the confusion with regard to the cause as well as the treatment of the cardiac phenomena of exophthalmic goiter and of adenomatous goiter with hyperthyroidism has been due, first, to inexact knowledge of the symptoms characterizing these diseases, which result from improper or increased activity of the thyroid gland, and second, to failure to differentiate them from more or less similar syndromes such as cardiac neurosis, the irritable heart of soldiers, disordered action of the heart, and neuro-circulatory asthenia, which are not attributable to improper functioning of the thyroid gland.

Exophthalmic goiter is a constitutional disease due apparently to an excessive, and probably abnormal, secretion of an enlarged thyroid gland showing, pathologically, diffuse parenchymatous hypertrophy and hyperplasia. It is characterized by an increased basal metabolic rate with resulting secondary manifestations, a peculiar nervous syndrome, and, usually, exophthalmos and a tendency to gastrointestinal crises of vomiting and diarrhoea. The cause of the pathologic process and activity of the thyroid gland is not known.

Adenomatous goiter with hyperthyroidism is a constitutional disease due to the presence in the thyroid gland of adenomatous tissue which, by maintaining an abnormally high and unregulated concentration of thyroxin within the body, causes an increased basal metabolic rate with resulting secondary manifestations.

The most outstanding fact shown by the data presented in this article is the infrequency in both exophthalmic goiter and adenoma with hyperthyroidism of symptoms indicating cardiac disease.

Only one-fourth of the patients had auricular fibrillation, and in less than one-half of these was the fibrillation a constant phenomenon. About one-fifth had a moderate degree of oedema of the legs as evidence of slight cardiac weakness, and this disappeared readily under treatment with rest and digitalis. Not more than 2 per cent of the patients presented sufficient clinical evidence of myocardial injury to classify them as having serious cardiac disease. When cardiac damage is present, however, it is a very dominant factor in the prognosis and treatment. In this limited group of cases the operative mortality can be greatly reduced by measures directed toward restoration and maintenance of cardiac compensation. The misconception with regard to the frequency of cardiac disease in hyperthyroidism arose undoubtedly from the interpretation of the increased heart rate as evidence of a pathologic condition of the heart, whereas, until the later stages, when the symptom is supplemented by those of fatigue with auricular fibrillation, it is evidence of normal response to increased demand.

The opinion is prevalent that many of the deaths in both diseases are due to heart failure as the major factor. Death is a complex process. It is difficult to estimate the relative importance of the various factors involved, but the authors believe that their data permit them to make such an estimation with more clearness and exactness than heretofore, and possibly to eliminate certain misunderstandings on the subject.

Their experience has been that if these patients receive appropriate cardiac treatment they apparently do not die of heart failure. In a consecutive series of twenty-three deaths, including postoperative deaths as well as those occurring before operative intervention was possible, there was only one in which the heart could be considered as the major contributory cause. This patient had general anasarca and was dyspnoeic and cyanotic; the heart was markedly enlarged and the auricles persistently fibrillated throughout the period of observation; at no time was operative intervention considered.

Deaths from postoperative acute hyperthyroid crisis with increasing elevation of the heart rate, with or without the development of auricular fibrillation, have been usually attributed by the surgeon to heart failure. A careful analysis of the symptoms in the series of cases studied revealed that such an interpretation of death is not justified, in the main, except for the final cataclysm. The evidence points to the reverse conclusion, because the increased heart rate is an expression of the attempt of the heart to increase its volume output sufficiently to meet the demands made upon it by the greatly increased metabolism. It is undoubtedly true that the heart muscle, like other tissues in the body, is rendered more irritable and less efficient by the intense thyroid intoxication.

This cardiac reaction closely simulates, although in an exaggerated form, the symptoms seen during the height of a severe acute infection. Because the

postoperative hyperthyroid crisis is more prone to occur in patients with a high degree of hyperthyroidism, especially when this is associated with the irritability, mental instability, and depression characteristic of exophthalmic goiter, and because the intensity of the reaction and the number of deaths are decreased by the administration of iodine, as shown by Plummer's recent investigation, it is probable that the reaction is dependent on a peculiar intoxication caused by the presence in the body of an excess of an incompletely iodized thyroid secretion. The intensity of this reaction varies greatly; certain patients barely survive and others might survive if the heart could withstand the strain twenty-four hours longer; in this latter sense, the condition of the heart must, of course, be considered a contributory factor.

From the study of the various data and from an analysis of the individual case reports, especially those of the patients who died, the conclusion is evident that if the patient is properly treated, cardiac death in exophthalmic goiter and in adenomatous goiter with hyperthyroidism is a very rare occurrence. The finding at autopsy of fatty degeneration of the heart, which in some cases is no more than that found in persons who die of old age, appears to be an expression of the effect of a long-continued or intense toxæmia combined with increased activity. As similar changes have been found in certain voluntary muscles, such as the quadriceps, the fatty degeneration of the heart cannot be regarded as the major cause of death, although if extreme, it may render the heart unable to withstand the strain until the crisis is past.

The surgical mortality in cases of exophthalmic goiter and in those of adenomatous goiter with hyperthyroidism is an expression of the detailed care and co-ordination of the medical, laboratory, and surgical services. As patients with these diseases are very susceptible to anoxæmia, injury to the recurrent laryngeal nerves and the production of laryngeal oedema are particularly dangerous as they place a still greater strain on the already overloaded heart. For the avoidance of these as well as other surgical dangers in the maintenance of a low surgical mortality, the major portion of the credit justly belongs to the surgeon. On the other hand, as in exophthalmic goiter and in adenomatous goiter with hyperthyroidism the heart is subjected to tremendous demands far in excess of those made in any other disease, it is incumbent on the physician and the surgeon to aid it by appropriate measures.

The hearts in the cases on which the foregoing clinical report was based are a small group in a large series, the pathology of which is being studied at the present time by one of the authors. Although the group considered alone is too small and the patients concerned represent too wide a variation in age and in the continuation and type of the disease to warrant conclusions from the pathologic data alone, the following results of their review are of interest:

Of the hearts of the twenty-one cases which came to autopsy, some degree of hypertrophy was noted

in sixteen. In two instances the heart weighed 500 gm. and 550 gm. respectively. Both of these hearts were in large females, one with exophthalmic goiter, and the other with nodular goiter, associated with an acute terminal fibrinous pericarditis. In the other cases the hypertrophy equalled a 5 to 10 per cent increase in weight. In two of the hypertrophied hearts fibrosis was present.

Eleven of the sixteen patients with hypertrophy of the heart were past 45 years of age. One was 15, one 35, and one 38 years old. Ten of the sixteen hypertrophied hearts showed distinct dilatation as well as hypertrophy.

No note appears in the autopsy findings concerning dilatation or hypertrophy of the heart in the other five cases except that in one the heart weighed 250 gm. and was "firm and beefy" in texture. As is usual in exophthalmic goiter, the hearts at autopsy were mostly pale, soft, and somewhat dilated.

Histologically, the myocardium in eighteen cases showed apparently swollen fibers with indistinct striations and well-marked lipid changes. However, only five of the patients whose hearts were examined were under 40 years of age. It is difficult, therefore, accurately to determine whether the lipid changes were greater than might have been expected in persons more than 40 years of age and without exophthalmic goiter, but it is apparently true that in persons with long-continued, pronounced hyperthyroidism, the myocardium reveals more advanced fat changes than are present in the myocardium of persons of the same age without hyperthyroidism.

The impression of these hearts gained by the pathologist from both gross and microscopic examination is that of weak rather than strong muscles, although it appears from this series of cases that a large proportion of them show muscular hypertrophy.

W. M. BOOTHBY, M.D.

Austin, R. C.: Surgical Indications in Goiter. *Ohio State M. J.*, 1923, xix, 557.

Histologically, the three variations from the normal thyroid are: (1) an increase in intra-alveolar colloid, (2) the development of new alveoli, and (3) hypertrophy of the alveolar epithelium. These variations form the basis of the three main types of goiter: (1) the colloid goiter, (2) the adenomatous goiter, and (3) the exophthalmic goiter. All other types are variations or combinations.

The colloid type of goiter is seen most often in girls between the ages of 10 and 18 years. There is a symmetrical enlargement of both lobes and the isthmus, and the gland is soft and smooth. Operation is warranted only by pressure symptoms or for cosmetic reasons. The adolescent type usually disappears before the twenty-fifth year of age.

The colloid goiter is an expression of a deficiency in the amount of iodine available to the thyroid. Marine has shown that the administration of iodine often prevents or even cures colloid goiter, and he and Kimball believe that 2 gm. of sodium iodide given in 1-gr. daily doses twice a year are sufficient.

The adenomatous type of goiter is most common in the third and fourth decades of life. Examination reveals single or multiple firm masses. The symptoms due to non-toxic adenomata are purely mechanical. Toxic adenomata cause, in addition, increasing nervousness, tachycardia, dyspnoea, palpitation, tremor, weight loss, easy fatigue, hypertension, increased perspiration, and increased appetite. The wave of intoxication ascends progressively without the remissions which occur in exophthalmic goiter.

Plummer observed that the adenomatous type of goiter appears at the average age of 22 years and comes for treatment nineteen years and five months later, after the symptoms have been noted for two years and five months. The treatment is surgical if the adenoma is 3 cm. or more in diameter. Ligations are of no benefit.

Exophthalmic goiter may occur at any age, but is most common in the third and fourth decades. The course of the symptoms is somewhat acute, reaching a maximum severity or crisis at an average period of nine to twelve months from the time of their onset.

In the order of their onset the symptoms are: nervousness, vasomotor disturbances, tremor, increased appetite, tachycardia, loss of strength, cardiac insufficiency, exophthalmos, loss of weight, diarrhoea, vomiting, and mental depression.

Examination reveals a firm symmetrical enlargement and, in 80 to 90 per cent of the cases, bruits over the thyroid vessels. The onset of hyperthyroidism in exophthalmic goiter is rapid and rather acute, while in the toxic adenoma it is slow and insidious. Nervous symptoms predominate in the former and cardiovascular symptoms in the latter type. In toxic adenoma there may be a stare but exophthalmos is absent.

The best results in cases of exophthalmic goiter are obtained from early operation, but surgical treatment should not be given just before, during, or immediately after a crisis.

In mildly or moderately toxic cases in which the average metabolic rate is about 50 per cent, partial thyroidectomy may be performed. If the patient is markedly toxic, a preliminary ligation followed by a secondary ligation should be done. After about three months a thyroidectomy may be performed safely.

While the majority of thyroidectomized patients have an uneventful convalescence, there is occasionally a postoperative reaction characterized by a rise in the temperature from 103 to 105 degrees F. and an extremely rapid pulse. In such cases the temperature is controlled by the application of ice bags, and sufficient morphine is given to keep the patient at mental and physical rest. A hypodermoclysis of 4,000 c.cm. of saline solution is administered twice daily. Blood transfusions give striking results.

Malignancy is seldom diagnosed pre-operatively and usually develops in a pre-existing adenoma.

Surgery is indicated in the early stages, and X-ray and radium treatment in the later stages.

The causes of surgical failure or incomplete results are: (1) errors in the diagnosis, (2) faulty judgment in the choice of the time for operation, (3) the persistence of cardiovascular-renal symptoms resulting from delay of operation, (4) the recurrence of symptoms due to incomplete operations, and (5) myxœdema resulting from the removal of too much of the thyroid gland.

The numerous advantages of basal metabolic readings are enumerated.

CLAYTON F. ANDREWS, M.D.

Breitner, B.: The Indications for the Surgical Treatment and Prophylaxis of Goiter (Indikationen fuer die chirurgische Behandlung und Prophylaxe des Kropfes). *Wien. klin. Wchnschr.*, 1923, xxxvi, 213.

The mechanical indication for operation is seldom the size of the goiter but usually its relation to the trachea (hence the importance of transillumination in two planes) and sometimes its relation to the œsophagus. Compression of the trachea, even when interference with respiration is slight, is in itself an indication for surgical intervention, especially in young persons, in whom tracheomalacia often follows compression. According to Blauel and Reich, chronic stenosis of the trachea leads also to colloid goiter, and for this additional reason operation is necessary. Operation for cosmetic reasons is refused by many. In 60 per cent of cases the author has been able to find a mechanical indication for operation on X-ray examination even when the patient did not complain of any symptoms whatever.

In cases of thyroid hyperfunction the choice of procedure is very difficult. This is evident from the variety of operations proposed. Kocher ligated one or all of the thyroid arteries, while Sudeck, in severe cases, removed the gland entirely. Between these two extremes lie various operations, thyrectomy, and roentgen-ray therapy. A functional test of the thyroid is essential for the correct interpretation of the indications in hyperthyroidism.

The interpretation of microscopic findings must be made on the basis of secretion formation and absorption; in some cases of normal secretion hyperthyroidism may result from increased absorption. If Basedow's disease develops in a case of goiter as the result of removal from a goitrous region, disease, or psychic trauma, the secretion of colloid can be arrested by resection. If a persisting thymus is associated with goiter causing compression and the clinical picture is not exclusively or preponderantly characterized by evidences of hyperthyroidism, resection of the goiter will relieve the compression, but thyrectomy will perhaps have the most marked effect upon the condition. In cases of Basedow's disease with a small, very vascular goiter not causing compression, surgery is contra-indicated. The arrest of colloid secretion which, according to Blauel and Reich, may be brought about by diminished oxygen

consumption, cannot be used in the treatment of Basedow's disease. On the other hand, residence in an endemic goiter region is beneficial to persons with Basedow's disease. The causative agent of endemic goiter seems to have a favorable influence upon hyperfunction of the gland. Endemic goiter is based upon hypofunction of the gland.

Although the etiology of goiter is not entirely understood, the influence of iodine upon the condition has long been known. Sometimes hyperthyroidism is induced by the administration of iodine. The author has been able to demonstrate experimentally that colloid is stored in incomplete secretion of the gland which may be brought to the finished state by doses of iodine. The administration of small quantities of iodine in sodium chloride as recommended by Wagner-Jauregg has proved a very good prophylactic measure. Injurious effects from such small quantities have never been observed. By this treatment the accumulated colloid is removed, and the goiter decreased in size. Since young persons utilize more thyroid secretion than older persons, the administration of iodine is not apt to produce hyperthyroidism in the former. This fact also indicates that endemic goiter is caused by interference with the absorption of secretion. The administration of small quantities of iodine as a prophylactic measure is of value only in cases of hyposecretion.

SALZER (Z).

Pemberton, J. deJ.: The End-Results of Surgery of the Thyroid. *Arch. Surg.*, 1923, vii, 37.

The mortality of surgery of the thyroid gland compares favorably with that of any major surgery. At the Mayo Clinic during the year 1922, there were 1,983 operations on 1,497 patients with goiter, with a mortality by operation of 0.95 per cent and a mortality by cause of 1.2 per cent.

The diseases of the thyroid gland which are amenable to surgery may be grouped under six headings: (1) diffuse colloid thyroid, (2) adenoma without hyperthyroidism, (3) adenoma with hyperthyroidism, (4) exophthalmic goiter, (5) thyroiditis, and (6) malignancy.

Diffuse colloid goiter is a physiological enlargement of the thyroid gland occurring in adolescence, caused by iodine insufficiency, and cured by the administration of iodine or thyroxin. Unless colloid goiter is associated with adenoma or causes pressure symptoms because of its size, surgery is not indicated.

Adenoma without hyperthyroidism should be treated surgically, partly for cosmetic reasons and the relief of pressure symptoms, and partly because in a certain percentage of the cases hyperthyroidism develops subsequently. The operative risk is less than 0.5 per cent, and operation practically always results in a cure.

If a patient with adenoma of the thyroid gland develops hyperthyroidism, the onset is usually so insidious that surgery is not sought until marked visceral degeneration has taken place, which in-

creases the operative risk and diminishes the chance for complete cure. The operative mortality in this group is between 2 and 4 per cent. Surgery results in a cure in about 83 per cent and in marked improvement in another 5 per cent.

Exophthalmic goiter is a constitutional disease due apparently to an excessive (probably abnormal) secretion of the thyroid gland. While its cause is unknown, treatment aims to diminish the activity of the thyroid gland. Because of the increase in our knowledge of the disease and of the dangers incident to surgery, and because of the fact that persons with exophthalmic goiter are coming to operation earlier; before the development of visceral changes, the surgical mortality has been reduced to 1.005 per cent in terms of operation and 1.74 per cent in terms of cases.

The natural fluctuating course of the disease makes it difficult to evaluate any form of treatment unless sufficient time has elapsed to preclude the probability of recurrence. For this reason the author selected for his study patients operated on in 1916. Of 482 patients with exophthalmic goiter to whom a questionnaire was sent, a reply was received from 349 (72 per cent). Ninety per cent were living, 79 per cent considered themselves cured or greatly improved by the operation, 8 per cent were improved but showed evidence of hyperthyroidism or its effect, and 3 per cent were not benefited. In analyzing the data a lack of improvement could be traced definitely to three causes: (1) incompleteness of the operation, (2) the long duration of hyperthyroidism before the operation, and (3) failure to eliminate foci of infection after the operation.

Thyroiditis is rare. Surgery is indicated only in the tuberculous and suppurative types.

Malignancy occurs as sarcoma, carcinoma, malignant adenoma, and malignant papilloma, in the ratio of one malignant case in fifty-seven benign cases. The prospect of cure by operation and intensive radium and roentgen-ray treatment varies with the type of malignancy.

J. DEJ. PEMBERTON, M.D.

Mayo, C. H., and Pemberton, J. de J.: *Surgery of the Thyroid and Its Mortality*. *Ann. Surg.*, 1923, lxxviii, 146.

During the last sixteen months, up to May 1, 1923, 2,524 operations were performed at the Mayo Clinic on 1,949 patients with goiter. Twenty-five of the patients died, a mortality by operation of 0.99 per cent, and by case of 1.28 per cent.

There were 1,398 operations on 853 patients with exophthalmic goiter. Thirteen of these patients died, a mortality by operation of 0.92 per cent, and by case of 1.5 per cent. Two hundred and seventy-seven patients with adenomatous goiter with hyperthyroidism were operated on; nine died, a mortality of 3.24 per cent. Only three (0.36 per cent) of 819 patients died following thyroidectomy for goiter without hyperthyroidism.

The operative risk in cases of goiter without hyperthyroidism cannot be compared with that of goiter with hyperthyroidism; in the former the dangers are confined to the operative and postoperative accidents; in the latter the greatest danger lies in the disease itself.

The reduction of the mortality to 1 per cent in the surgery of exophthalmic goiter is attributable to three factors: (1) Patients with exophthalmic goiter are coming to operation earlier in the course of the disease, before the development of visceral degenerative changes. (2) By combined medical and surgical management, the development of postoperative acute hyperthyroidism has been reduced to the minimum. (3) A clearer recognition of the dangers involved in injury of the recurrent laryngeal nerve has led to greater care to avoid such injury.

The combined medical and surgical management of persons with exophthalmic goiter is warranted from the economic standpoint as it has reduced the necessity for ligations.

As preliminary measures are ineffectual in adenomatous goiter with hyperthyroidism, the mortality rate is dependent upon the number of poor risks accepted for operation.

A. J. SCHOLL, M.D.

SURGERY OF THE NERVOUS SYSTEM

BRAIN AND ITS COVERINGS; CRANIAL NERVES

Torrigiani: Barany's Sign of Deviation in a Case of Lesion of the Frontal Region, and the Influence of Stimulation of the Frontal Region upon Provoked Vestibular Nystagmus (Il segno della deviazione—Barany—in un caso de lesione della regione frontale e l'influenza dello stimolo della regione frontale sul nistagmo vestibolare provocato). *Sperimentale*, 1922, lxxvi, 407.

In a patient on whom a craniectomy had been done because of an injury of the frontal region the author was able to provoke intense vestibular nystagmus on the right or left side by electrical stimulation behind the ear. He observed further that when the craniectomy wound in the frontal region was cooled by a compress wet with ethyl chloride the nystagmus was completely arrested. The exact region cooled was the caudal part of the second frontal convolution.

In the author's opinion this clinical finding is of significance with regard to the centers of the frontal lobe and the routes uniting these centers and the ocular motor nuclei.

W. A. BRENNAN.

Locke, C. E., Jr.: Hydrocephalus (L'hydrocéphalie). *Bruxelles-méd.*, 1923, iii, 476.

The author briefly reviews the theories as to the cause of hydrocephalus. Even after Hilton's report in 1860 of three cases of obstruction of the aqueduct of Sylvius it was generally believed that there are two types of hydrocephalus—the obstructive and the idiopathic. Since the work of Dandy and Weed in 1919, however, it is known that obstruction in the ventricles or the subarachnoid spaces is the cause of all types of hydrocephalus with perhaps one exception.

The author describes the anatomy of the ventricular and subarachnoid spaces with regard to the canals through which the cerebrospinal fluid circulates. The ventricular spaces are joined to the subarachnoid space by the foramina of Magendie and Luschka. The ventricular system, lined by ependyma, is composed of four cavities, the two lateral ventricles joined by the foramina Monroe and the third ventricle which is joined to the fourth by the aqueduct of Sylvius.

The drainage of the subarachnoid space occurs into the spongy tissue between the arachnoid and pia and the perivascular spaces around the cerebral sinuses.

The author describes the origin of the cerebrospinal fluid in the choroid plexus and its circulation from the lateral ventricle to the third and fourth ventricles through the foramina of Luschka and Magendie, out into the subarachnoidal space and

hence to absorption probably in large part by the villousities of the arachnoid and to a slight extent by the lymph spaces.

Any obstruction in the course of the cerebrospinal fluid will lead to hydrocephalus. Thrombosis of the straight sinus or the vein of Galen may produce this condition.

Obstruction due to a tumor or inflammation of the foramen of Monroe causes unilateral dilatation of the ventricle resulting in unilateral enlargement of the head. Lumbar puncture does not evacuate much fluid and roentgen-ray examination following the injection of air into the distended ventricle shows that only the one ventricle contains air.

Obstruction of the aqueduct of Sylvius is the cause of at least 50 per cent of the cases of infantile hydrocephalus. This may be due to congenital malformation with absence or blockage of the duct or to a tumor, a cicatrix from intra-uterine infection, tuberculosis, or a gumma. It results in a very large head with wide cranial sutures. Lumbar puncture yields only a small amount of fluid. Ventriculography reveals air in the lateral and third ventricles but none in the fourth or the cisterna.

Obstruction of the fourth ventricle is usually caused by a tumor, tuberculosis, or gumma. In children, typical hydrocephalus results, while in adults there are signs of greatly increased intracranial pressure. Ventriculography shows air in the lateral and third ventricles and the dilated aqueduct of Sylvius but no air in the fourth ventricle, the cisterna, or the subarachnoid space over the cortex.

Obstruction of the foramina of Luschka and Magendie is rare. Lumbar puncture does not empty the ventricles. Ventriculography shows air in the dilated lateral ventricles, the third ventricle, the aqueduct of Sylvius, and the fourth ventricle, but none in the posterior cisterna or the cerebral convolutions.

Obstruction to the absorption of cerebrospinal fluid may follow inflammation of the arachnoid.

External hydrocephalus, which is very rare, is probably caused by the rupture of an obstructive hydrocephalus into the subdural space.

Puncture of the corpus callosum with drainage of the ventricles through a tube into the subdural space has not been successful, even when fistulae were formed by means of silk thread. The openings always closed in a short time. Attempts have been made to create a fistula between the subarachnoid space and the peritoneum, to remove parts of the choroid plexus, or to cauterize it. More recently in obstruction of the aqueduct of Sylvius a tube is employed to reconstruct the duct and is left in place. When the foramina of Luschka and Magendie are closed the formation of a new foramen is attempted.

KELLOGG SPEED, M.D.

Dandy, W. E.: The Space-Compensating Function of the Cerebrospinal Fluid—Its Connection with Cerebral Lesions in Epilepsy. *Bull. Johns Hopkins Hosp.*, Balt., 1923, xxxiv, 245.

According to the most generally accepted view, the function of the cerebrospinal fluid is to protect the brain and spinal cord from shock. Since the fluid is incompressible, this protection must be afforded by its ready displacement.

Mechanically, lesions of the central nervous system are space-occupying or destructive in character. In the former, space is obtained through reduction in the amount of blood circulating in the cerebral vessels, the destruction of brain tissue, or the forcing of the fluid from the cerebrospinal fluid spaces of the brain. Subcortical tumors characteristically produce a pronounced local anæmia of the brain substance directly above them and pallor of the adjoining cerebral substance which become less as the distance from the tumor increases. Tumors destroy cerebral substance and, by producing hydrocephalus, cause additional destruction due to the dilation of the ventricles. A greater amount of room for the development of the tumor is perhaps obtained by obliteration of the cerebrospinal spaces. There is absence of cerebrospinal fluid over a subcortical tumor and consequently obliteration of the subarachnoid spaces. Tumors of the posterior fossa obliterate the cerebellar subarachnoid spaces and reduce the size of the cisterna magna. These facts may be shown graphically by cerebral pneumography.

In cases of destructive lesions the cerebral cavities are called upon to make up a very large share of the loss of space. As an intracerebral vacuum is inconceivable, the ventricles and subarachnoid spaces must make up this destruction. A further contributing factor in filling cerebral defects is cerebral fibrosis or gliosis.

In epilepsy, it is usually possible to demonstrate the presence of a cerebral lesion or a change indicating a lesion. The changes most commonly found are: (1) dilatation of the ventricles, (2) abnormal shape of the ventricles, (3) dilatation of the subarachnoid spaces, (4) cerebral atrophy, (5) areas of gliosis, (6) changes in the meninges, and (7) congenital malformations. Accumulations of fluid completely covering areas of the brain and rendering the underlying cortex and its vessels invisible indicate to Dandy that there has been a loss of cerebral substance equal at least to the quantity of the fluid. In addition, the brain beneath the fluid is softer than the contiguous normal cortex. While these accumulations of fluid over the brain surface in epileptics have been recognized for some time, they have been regarded as the result rather than the cause of the convulsions. However, it is to be noted that many of the most severe cases of epilepsy of the congenital type do not show them. From these evidences of cerebral lesions the author concludes that a large percentage of the so-called idiopathic epilepsies have a pathological basis.

LOYAL E. DAVIS, M.D.

Koljubakin, S. L.: The Treatment of Cortical Epilepsy by Injecting Alcohol into the Motor Centers (Die Behandlung der corticalen Epilepsie mit Alkoholinjektionen in die motorischen Zentren). *Arch. f. klin. Chir.*, 1923, cxxiv, 114.

The procedure discussed was developed by Razumowsky. The author believes that in cases of non-traumatic epilepsy of the Jadasson type it should be substituted for the removal of the spasmodic centers (Horsley, von Bergmann). A flap of skin, muscle, and bone is formed according to the method of Wagner and the dura is opened by two incisions parallel with the base of the flap. This procedure has the advantage that it renders dural sutures unnecessary. The centers are found with the aid of a unipolar electrode placed over the injection cannula, and are injected with from 2 to 3 c.cm. of absolute alcohol.

Of three cases treated in this manner all were benefited, but in one case a repetition of the injection was necessary after sixteen days. The patients were re-examined after sixteen days, seventeen days, and two months, but these periods are undoubtedly much too short for a correct evaluation of the method. Paralysis has not occurred.

BONN (Z).

Smith, P. E., and Smith, I. P.: The Function of the Lobes of the Hypophysis as Indicated by Replacement Therapy with Different Portions of the Ox Gland. *Endocrinology*, 1923, vii, 579.

In experiments on tadpoles the authors found that early hypophysectomy produced: (1) a slower growth rate, (2) failure of the larva to metamorphose, (3) albinism, and (4) a large and persistent fat organ which they believe indicated a disturbance of metabolism.

By feeding extracts of the hypophysis of the ox they were able to control general body growth, the behavior of the pigmentary system, and the capacity of the fat organ. Extracts of the pars anterior of the hypophysis produced all of these results, while those of the pars intermedia and pars neuralis corrected only the pigmentary and metabolic disturbances.

These experiments are of interest since they tend to contradict recent claims that growth retardation induced by experimental hypophysectomy in the mammal is due to incidental injuries to the hypothalamus rather than to a loss of anterior lobe substance.

LOYAL E. DAVIS, M.D.

Just, T. H.: Brain Abscess Due to Otitic Infection; Right Temporoparietal Abscess Without Clinical Signs. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Otol., 54.

The first case reported was that of a woman aged 27 years who had had otorrhoea and deafness of the right ear since childhood. A few days before her admission to the hospital, headache which increased in severity and daily vomiting began. Examination revealed moderate rigidity of the neck, a temperature of 101.2 degrees F., and a pulse of 120. The right tympanic membrane was obscured by granula-

tions, a purulent discharge, and epithelial debris. There was no amnesia.

A radical mastoid operation showed the mastoid to be acellular and the roof of the antrum carious. Immediately above the tegmen was an extradural abscess. The dura mater beneath the temporo-sphenoidal lobe was covered with granulations. In the center of the exposed dura a sinus led to a brain abscess. This was opened, washed with saline solution through a No. 10 catheter by the Cushing method until the fluid returned clear, and drained with a tube. The tube was removed on the tenth day when pus drainage had ceased. The patient recovered.

In a second case of temporo-sphenoidal abscess containing $1\frac{1}{2}$ oz. of offensive pus, the granulating dura over the abscess was removed and the abscess was washed and sucked out with a syringe for ten minutes. The drainage tube was loosened on the second day and removed on the third day. Recovery was progressive and uneventful.

Jenkins prefers free excision of the abscess wall and drainage by rubber tissue because a small hole and tube drain may become blocked.

Ballance states that a brain abscess is difficult to drain and that washing it out may be dangerous. The drainage tube should be inserted as soon as the abscess is opened and then left in place because its accurate replacement is difficult. Ballance always drains unless the abscess has been completely enucleated.

WALTER C. BURKET, M.D.

Gabriel: Encephalography (Ueber Encephalographie). *Fortschr. u. d. Geb. d. Roentgenstrahlen*, 1923, xxx, 65.

The Bingel method of introducing air by way of the dural sac will demonstrate not only the ventricles, but also the surfaces and the individual portions of the brain. The Dandy method of filling the ventricles directly should be used only when the Bingel procedure is insufficient. The author employs ozone for the insufflation. Changes in the pulse and attacks of sweating and pallor during the filling are of no importance. As a rule there is a rise in the temperature on the first day. Encephalography has never caused death in the author's cases.

TOBLER (Z).

Spiller, W. O.: The Diagnosis of Brain Tumor. *Atlantic M. J.*, 1923, xxvi, 723.

Dandy, W. E.: The Diagnosis and Treatment of Brain Tumors. *Atlantic M. J.* 1923, xxvi, 726.

Most difficult in the complex problem of the diagnosis of brain tumors is the localization. In addition to the important neurological examination, ventriculography is now used for this purpose. General signs of increased intracranial tension have, of course, no localizing value, and may give rise to extremely confusing symptoms. A lesion which develops slowly in the brain does not cause symptoms of the same intensity or extent as those caused by a lesion which forms rapidly, since in the first instance the brain is better able to adjust itself to the altered conditions.

In the early diagnosis of cerebellopontine-angle tumors the Barany tests in the hands of a trained otologist, revealing the presence or absence of function of the vestibular nerve, are regarded as of prime importance. Amnesia, aphasia, or inability to use the proper word is one of the earliest signs of a tumor of the superior left temporal lobe. A sixth cranial nerve palsy is of localizing significance when it develops early or is associated with paralysis of adjoining cranial nerves, but causes great confusion when it develops late. Roentgenograms of the skull without the injection of air into the ventricles are of value in lesions about the sella turcica, calcified tumors, and endotheliomata, but otherwise are rarely of diagnostic aid.

Ventriculography is associated with serious risk and should be used only by a competent neurological surgeon fully acquainted with the anatomy and physiology of the nervous system. Brain enlargement and normal variations in the anatomy of the ventricles have both led to the misinterpretation of ventriculograms. Air within the brain is an irritant, and when introduced rapidly or in excessive amounts and when used in the cases of patients in a precarious surgical condition may be the cause of a fatal diagnostic error. The correct interpretation of ventriculograms must rest upon a definite and thorough knowledge of the normal.

In competent hands, and when correctly interpreted, ventriculography may be of decided aid in localizing lesions which can be treated thoroughly and directly by operation. To remove the tumor and thus to attack the lesion directly, and to do fewer palliative decompression operations should be the goal of the future.

LOYAL E. DAVIS, M.D.

Wertheimer, P.: Anatomico-Clinical Considerations on Intracranial and Traumatic Subdural Hæmorrhages in the Adult (Considérations anatomocliniques sur les hémorragies sous durales intracrâniennes et traumatiques de l'adult). *Rev. de chir.*, Par., 1923, xlii, 150.

In Wertheimer's opinion, subdural hæmorrhages frequently follow intracranial injuries and often are the cause of death. Such hæmorrhages are multiple and may pass unrecognized as their clinical symptoms are not very clear. Fracture of the skull is not necessary for their development, and they are not favored by any particular type of fracture. While absorption may take place, there can be no assurance of it, and therefore as a rule exploration and evacuation are indicated.

Lumbar puncture does not always reveal hæmatic fluid, but usually hypertension and symptoms of cortical irritation or cerebral deficiency are noted. These may be manifested by epileptiform crises of the jacksonian type, aphasia, or hemiplegia.

The fact that even slight lesions may cause hæmorrhage does not seem to be well appreciated. According to Henschen, even a fit of coughing may be responsible. In thirty-three of 246 cases collected by Henschen, no cranial or cerebral lesion was found.

Except in cases of open fracture, the danger of infection of an intracranial hæmatoma is slight.

Treatment should be given early. Lumbar puncture may be employed in both the diagnosis and the treatment, but in the latter is not sufficient even if repeated. Trephination is necessary, at least as far as exploration, and is indicated by the least symptoms of intracranial compression. The site depends on the signs of localization. In the presence of signs of compression and the absence of extradural hæmorrhage, the dura mater should be incised as the persistence of an unrecognized hæmatoma is dangerous. When trephination has been deferred to the period at which a hæmatoma has been definitely formed, evacuation of the hæmatoma is sufficient. If signs of compression develop later, lumbar puncture will be beneficial and is to be preferred to drainage which might be a source of secondary infection as well as of irritation favoring recurrence of the hæmorrhage.

Early operation is the best means of preventing the complications of subdural hæmatoma and lowering the mortality. Trephination is the best treatment to prevent secondary epilepsy. W. A. BRENNAN.

Doyle, J. B.: Glossopharyngeal Neuralgia. *Med. Clin. N. Am.*, 1923, vii, 285.

Seven cases of glossopharyngeal neuralgia seen at the Mayo Clinic are reported.

In one case, that of a man 63 years of age, complaint was made of pain in the throat and the right ear. The patient stated that five years previously, after taking a drink of cold water, he experienced a sharp paroxysmal pain in the region of the right ear and excessive tenderness of the auricle. These seizures recurred until 1918, when his tonsils were removed. He was then completely relieved for about three years, but thereafter had mild paroxysms for six months. The pain recurred in February, 1922, and at the time of examination he was having great difficulty in obtaining sufficient nourishment because of the pain induced by drinking and mastication. The pain was paroxysmal, short, and agonizing; it arose in the right faucial region, radiated laterally to the area anterior and posterior to the right ear, and lasted from thirty to ninety seconds. Physical and neurologic examinations were essentially negative except that a trigger area was discovered in the right hypopharyngeal region. On March 23, 1922, the sensory root of the right gasserian ganglion was cut. The motor root was preserved. On April 12 the pain recurred. On April 25 the glossopharyngeal nerve was avulsed from the jugular foramen and the pharyngeal branch of the vagus was cut. For the past ten months there has been no recurrence.

Another case was that of a man aged 52 years, who complained of a dull throbbing pain in the region anterior to the right external auditory meatus which was associated with paroxysms of short, stinging pain in the right side of the throat and the right ear and had been present for two weeks. In-

jection of the mandibular division of the fifth nerve and the auriculotemporal nerve gave no relief.

The five other patients presented the same syndrome of paroxysmal pain initiated by talking, chewing, coughing, and sneezing, and especially by cold water touching the pharyngeal wall. Two in this group were operated on. In one case, the operation was stopped before the ninth nerve was exposed; in the other, complete symptomatic relief was obtained following avulsion of the ninth nerve and section of the pharyngeal branch of the vagus.

The distribution of pain in the first two cases was considered atypical, but the paroxysms were exactly like those of trifacial neuralgia. Following the recurrence of pain after section of the sensory root of the gasserian ganglion in the first case, and after the failure of alcohol injections in the second, it became apparent that in spite of the resemblance to trifacial neuralgia, some nerve other than the trigeminal was involved.

Glossopharyngeal neuralgia is a definite clinical entity differing from trifacial neuralgia only in the area of distribution of the pain. J. B. DOYLE, M.D.

Cleminson, F. J.: A Case of Acusticus Tumor (Right); Operation by Sir Victor Horsley in 1912; Removal of Tumor; Recovery. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Otol., 31.

Walshe, F. M. R.: A Specimen of Brain and Acusticus Tumor. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Otol., 32.

Trotter, W.: The Surgical Treatment of Eighth Nerve Tumors. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Otol., 37.

This brief symposium upon the diagnosis and surgical treatment of tumors of the eighth nerve followed the presentation of a patient who had been operated upon in 1912 by Sir Victor Horsley for an acusticus tumor. The residue of symptoms in this case consisted of complete deafness in the right ear, sensory disturbances over the area of the right fifth nerve, right facial paresis, and a slight defect of co-ordination in the right hand.

Symptoms referable to the eighth cranial nerve, of course, usher in the clinical picture of such tumors. These symptoms are vertigo and progressive deafness with or without tinnitus. Attention is called to the importance of the experimental work of Magnus and de Kleijn in differentiating between cerebellar and labyrinthine defect-symptoms. The evidence indicates that ataxia, nystagmus, and muscular atonia are of cerebellar origin. The posture of the head so common in cerebellar lesions is probably a manifestation of a unilateral labyrinthine defect. Loss of muscle tone is due to the rotation of the head, which sets up what Magnus terms a "tonic neck reflex." This reflex in turn produces diminution of tone in the extensor muscles of the limbs of the side of the lesion.

A progressive paralysis of function in the cranial nerves adjacent to the acoustic nerve and in the cerebellum causes the symptoms which next make their appearance. The fifth, seventh, sixth, ninth,

tenth, and eleventh nerves are affected most commonly in the order in which they are mentioned. General signs of increased intracranial tension of course make up a part of the clinical picture and may dominate it so greatly as to obscure the focal symptoms.

It is suggested that a careful investigation of the dual physiological functions of the labyrinth in these cases would furnish an important aid in the diagnosis. The vestibular nerve belongs to the non-sensory afferent proprioceptive system and has two endorgans, the otoliths and the semicircular canals. These receptors react to different stimuli and give rise to reflex muscular reactions of a wholly distinct character. The otoliths are stimulated by variations in the position of the head in relation to the horizontal plane and the reactions are variations in muscle tone and therefore in attitude. The semicircular canals are stimulated by rotation or movement in a straight line, either vertically or horizontally. The reactions resulting are movements which cease when the stimulus fails.

Secondary hydrocephalus and a general rise in the intracranial tension are the most serious obstacles to successful surgical procedures in these cases. Cystic collections of fluid are apt to be encountered and may be mistakenly regarded as the source of the symptoms. Edema of the medulla is the most serious postoperative complication.

LOYAL E. DAVIS, M.D.

Eagleton, W. P.: *Clinical Studies of Vestibular and Auditory Tests in Intracranial Surgery.* *Laryngoscope*, 1923, xxxiii, 483.

In a detailed article in which the development, anatomy, and physiology of the vestibular and auditory pathways are reviewed, the author gives his conclusions as to the value of clinical examination of these structures in the diagnosis of intracranial lesions.

In cases of a lesion in the posterior fossa causing increased intracranial tension the vertical canals of both ears will fail to react to stimulation with cold water. If the lesion is supratentorial the reaction is obtainable but may be delayed. In the presence of a protective localized meningitis with a collection of cerebrospinal fluid over the anterior surface of the cerebellum caused by a traumatic or suppurative labyrinthitis, a typical vestibular syndrome is present. This is characterized by: (1) failure of reaction to stimulation of the vertical canal of the opposite as well as of the affected side, (2) reduction of the duration of nystagmus induced by stimulation of the opposite side by turning, and (3) rapid disappearance of the past-pointing deviation.

Nystagmus induced by turning and nystagmus induced by caloric tests are fundamentally different because of the difference in the nature of the stimulation. Therefore in diseases of the nervous system they should be considered independently as they may furnish distinct localizing information.

LOYAL E. DAVIS, M.D.

Davis, E. D. D.: *The Morbid Anatomy and Drainage of Otitic Meningitis.* *Proc. Roy. Soc. Med.* Lond., 1923, xvi, Sect. Otol., 43.

In the autopsy examination of thirteen cases, otitic meningitis of the middle fossa and cerebral cortex was found to be much less frequent than that of the posterior fossa and usually secondary to an abscess in the temporosphenoidal lobe.

In order to determine the paths of intracranial infection from a suppurative otitic process, investigations were made on the cadaver. When the sub-arachnoid space was injected through the internal ear and the auditory meatus with a solution of methylene blue the dye was found in the cisterna interpeduncularis, extending to the optic chiasma and backward around the crura to the interval between the tentorium and cerebellum. No dye was present in the cisterna magna or ventricles. When the injection was made through the dura mater immediately in front of the lateral sinus the pigment was limited to the under-surface and posterior aspect of the cerebellum, extending to the incisura posterior and the cisterna magna.

When thirty cubic centimeters of methylene blue were injected through the internal auditory meatus to the cisterna interpeduncularis, practically all of the fluid was recovered by aspiration through the same channel, but when a trocar was inserted through the atlanto-occipital ligament and foramen magnum to tap the cisterna magna, no pigment drained away. Again, when the methylene blue was injected in front of the lateral sinus, only a small fraction could be recovered by aspiration, but occipito-atlantal puncture of the cisterna evacuated drops of the blue fluid. When a lumbar puncture was done after the injection of the dye through the internal auditory meatus none of the dye could be recovered from the spinal fluid.

It was concluded that when meningitis is so far advanced that the cisterna interpeduncularis contains pus, and when there is pus in the cisterna magna, efficient drainage is difficult. Further, that when meningitis arises from infection of the labyrinth, drainage and suction by a syringe through the internal auditory meatus are most apt to be successful. If meningitis arises from sinus phlebitis, drainage and suction should be effected both behind and in front of the lateral sinus, and in this type of case occipito-atlantal puncture may be beneficial.

LOYAL E. DAVIS, M.D.

SPINAL CORD AND ITS COVERINGS

Sargent, P.: *Radiographic Localization of Spinal Lesions by Sicard's Method.* *Brit. M. J.*, 1923, ii, 174.

The author reports very briefly three cases of spinal cord compression in which the lesion was localized by Sicard's method. This method consists in injecting a heavy oily fluid containing 40 per cent of iodine into the spinal canal, either through a cisterna magna puncture with the patient sitting

up, or through a lumbar puncture with the patient lying down. After the injection an X-ray picture is made. As the injected fluid is opaque, a definite shadow is noted at the level of obstruction. It is claimed that exact localization with reference to the overlying laminae to be removed is obtained. Nothing is said as to the effect of the liquid upon the spinal cord.

LOYAL E. DAVIS, M.D.

PERIPHERAL NERVES

Manasse, P.: Double Union of One Nerve Trunk to Another (Ueber doppelte Nervenpfpfung). *Arch. f. klin. Chir.*, 1922, CXX, 665.

Since the results of plastic operations with pedunculated nerve flaps, of the free transplantation of nerve fragments, and of the interposition of fresh or preserved nerves to bridge nerve defects have been unsatisfactory, and since, on the other hand, the method of multiple union of one nerve trunk to another described by von Hofmeister must be rejected on both practical and theoretical grounds, the author recommends the double union of nerves with which he has obtained favorable results. The latter consists in the lateral implantation of the stumps of an injured nerve into a neighboring uninjured nerve. Manasse used this method in the following eight cases of war injury:

CASE 1. A perforating gunshot wound of the upper third of the left humerus with complete paralysis of the radial nerve due to a defect 1.5 cm. long. Double union to the median nerve was effected. Nine months after the operation active extension of the wrist had begun, and at the end of four years the injured arm could be used almost as well as the other.

CASE 2. Shrapnel wound of the left arm with paralysis of the median and ulnar nerves. The scar in the median nerve was excised and neurolysis performed on the ulnar nerve. Since no improvement could be made out, the scar in the ulnar nerve (7 cm. long) was resected six months later and double union of the stumps was effected to the trunk of the median nerve above and below where it was sutured. The hand muscles innervated by the ulnar nerve remained paralyzed.

CASE 3. A gunshot wound with fracture of the right humerus and total paralysis of the radial nerve. The scar, which was between 7 and 8 cm. long, was resected and double union of both stumps to the median nerve was effected. At the end of six months there was active extension in the wrist. At the end of three years there was irritability in all the muscles of the extensor side of the forearm with the exception of the supinator longus; the peripheral end of the radial nerve also responded to irritation; on irritation of the median nerve above the site of union, the muscles supplied by both nerves reacted.

CASE 4. A grenade injury of the radial nerve in the right arm. Operation consisted in resection of the 7-cm. scar and double union of both stumps to the median nerve. At the end of two years, in

spite of suppuration of the wound, there was complete function of all the muscles supplied by the radial nerve with the exception of the supinator longus.

CASE 5. A grenade wound of the left forearm with ulnar paralysis. The nerve was interrupted for a distance of 10 cm. Double union to the median nerve was performed according to von Hofmeister's method. At the end of two and one-half years no change in the paralysis was noted, but there was partial return of sensation.

CASE 6. A gunshot fracture of the left ulna with paralysis of the median nerve. The defect was 7 cm. long. Double union to the ulnar nerve was effected by von Hofmeister's method. The result was the same as in Case 5.

CASE 7. A gunshot fracture of the left ulna with paralysis of the ulnar nerve. The defect was 7 cm. long. Double union to the median nerve was effected by von Hofmeister's method, but the result was unsuccessful.

CASE 8. This case was the same as Case 7. The final result is not known.

The results of the double union were, accordingly, a complete cure in three cases, partial improvement in one case, and a failure in three cases. A cure was obtained only with double union of the paralyzed radial nerve to the median nerve. In general, the radial nerve offers the best prospect of restoration of conduction.

For the success of the operation it is important that the nerve to which the stumps of the sutured nerve are stitched be intact. Most important of all, however, is the operative technique. The "conductor" does not, as von Hofmeister believes, play an indifferent part; when its fibers are injured, they become united with those of the implanted nerve end. This explains why in Cases 5, 6, 7, and 8, in which von Hofmeister's method was followed exactly, the result was a failure. Von Hofmeister's stipulation that the bridging nerve must not be injured is incorrect; injury must be brought about purposely and in the motor paths in order to obtain restoration of motor function of the paralyzed nerve. The stumps must be stitched to those areas in the neighboring nerve which contain motor bundles.

In order to obtain convincing proof of the value of double union, the author tried out the method on a dog. In both forelegs the ulnar nerve was resected in the internal bicipital groove and its two ends were implanted into the median nerve. In the right extremity bipolar stimulation of the central and peripheral stumps of the ulnar nerve with the faradic current set up vigorous contractions of the toes.

Histological sections of the nervous apparatus on the right side gave a clear picture of numerous young nerve buds at the upper site of union radiating from the central ulnar nerve stump into the trunk of the median nerve. Similar buds followed the path of the latter downward. At the lower site of union single strands of young nerve fibrilli were seen running from the median nerve over to the peripheral stump

of the ulnar. Thereby the histological union of both nerves was proved beyond doubt.

Double union is to be preferred to single union, as the latter is often only partially successful. In double union the paralyzed nerve obtains new strength from two sources: (1) from the central stump belonging to it, and (2) from the paths of the bridging nerve. In single union it receives it from the latter only.

STREISSLER (Z).

Bankart, A. S. B., Openshaw, T. H., Riddoch, G., Little, E. M., and Others: Discussion on the Operative Treatment of Spastic Paralysis. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Orthop., 33.

Since spastic paralysis is usually due to permanent injury in the upper motor neurone, the benefit to be derived from operative treatment is limited. Extreme mental deficiency, athetosis, and progressive disease are contra-indications to surgery.

The muscle contractures may be physiological or, if long persistent, structural. Only surgery can avail in either case. In the former we have the choice of attacking either the afferent side of the reflex arc by the Foerster operation or the efferent side by cutting the motor nerve supply to the muscle. The Foerster method has been abandoned by most orthopedic surgeons because of the great difficulty in localizing the afferent impulses from any particular group of muscles in any particular spinal nerve roots.

By the Stoffel method of attacking the direct nerve supply to the muscle, which is more definite, any muscle or part of a muscle can be put out of function. A sufficient amount of the nerve bundle is cut to destroy the spasticity, but enough is left for physiological requirements. With refinements of technique and definite knowledge of the physiol-

ogy of the nerve trunks, which is fairly constant for any given cross-section, the resection of the required amount of the bundle is not difficult. Stoffel's operation abolishes the prolonged after-treatment and the use of braces. The spasticity is permanently relieved and all the child needs is encouragement and practice in walking.

In discussing Bankart's article Openshaw said that he had always operated on spastic cases by division of muscles and tendons. He had done Foerster's operation in two cases but found it extremely difficult and its results uncertain. Muirhead Little cited a case in which a Foerster operation cured the spasm but left the patient without a sense of balance so that he could not walk alone. Evans spoke of four cases in which he had done the Foerster operation with discouraging results. He favors resection of the motor nerves after they leave the parent trunk and seeks them out by electrical stimulation. Regarding Stoffel's operation Fairbank was not so optimistic as Bankart. He found that in old cases tenotomy was required in addition, and that in many cases splints were necessary in the after-treatment. He agreed with Evans as to the disappointing results following Foerster's operation. Rocyn Jones also considered tenotomy of the Achilles essential in addition to the nerve resection. In the upper limbs he has had better results from tendon transplantations than from nerve operations. Bristow said that in his experience it was always safe to divide both branches of the obturator nerve for adduction spasm. He prefers to divide it above the foramen by the extraperitoneal route. Feiling, a neurologist, was another who testified to the disappointing results following the Foerster operation. Elmslie and Naughton Dunn both advocated re-education of the muscles after the Stoffel operation.

WILLIAM A. CLARK, M.D.

SURGERY OF THE CHEST

CHEST WALL AND BREAST

Glass, E.: Additional Observations on the Disease Picture of Subacute Mastitis with the Formation of Nodules in the Breasts (Weitere Beobachtungen ueber das Krankheitsbild der subakuten Mastitis mit Knotenbildung in der Mamma). *Deutsche med. Wchnschr.*, 1923, xlix, 275.

To five cases previously reported the author adds eleven others. The condition described occurs usually in young girls and young women with pendulous breasts. Generally both breasts are moderately enlarged and hard, and contain several well-circumscribed, hard, and tender nodules, the size of hazelnuts, which resemble fibromata. The remaining glandular tissue is often sensitive to pressure. The glands at the border of the pectoral muscles are painful and enlarged.

The size and sensitiveness to pressure are very changeable and show a definite relationship to menstruation, being greatest about midway between the periods. In one case in which a microscopic examination was made the picture of chronic mastitis, proliferation of connective tissue and round-cell infiltration was found. In every case except one, rapid recovery was effected by the wearing of a support for the breasts. If there is any doubt regarding the benignity of the nodes, especially when they are not at all, or only slightly, sensitive to pressure, the removal of a gland for microscopic examination is indicated.

WORTMANN (Z).

Bunts, F. E.: Tumors of the Breast. *Ohio State M. J.*, 1923, xix, 561.

Bunts presents and discusses the findings in a detailed study of the records of 1,264 cases of diseases of the breast, among which were 721 malignant tumors.

The cases are divided into three groups, viz., benign tumors, malignant tumors, and miscellaneous conditions. The number of cases in each of these groups were: benign tumors, 161 (adenofibroma, 60.9 per cent); malignant tumors, 721 (carcinoma, 96.4 per cent); cysts, mastitis, etc., 382 (cysts and cystic mastitis, 61.5 per cent; mastitis, 19.1 per cent).

The age incidence was as follows:

Age Years	Benign Per cent	Malignant Per cent	Cysts, mastitis, etc. Per cent
Under 20	3.2	0.2	0.4
20-25	16.5	0.7	7.1
25-30	15.7	1.9	11.2
30-40	28.3	15.5	29.4
40-50	24.4	31.1	41.8
50-60	8.7	27.6	8.2
60-70	3.2	17.7	1.5
Over 70	0.0	5.3	0.4

The comparatively high incidence of the benign conditions in the earlier years, i.e., under 30, and of the malignant conditions in the later years appears significant as an indication of the potential malignancy of benign conditions.

Adenofibroma represents a more definitely precancerous condition than mastitis. In ninety-three (13.4 per cent) of the cases of cancer a history of trauma was given, in twelve cases the breast had been massaged, and in thirty-nine there was a history of abscesses or "caked breast." In 17.8 per cent there was a hereditary history of cancer. The fact that 74.6 per cent of the total number of patients and 80.7 per cent of those with malignant tumors were married is significant.

That function of breast is of some importance as a causative factor is suggested by the fact that only 12 per cent of the breast tumors in men were malignant as compared with 55.8 per cent of those in women.

The length of time between the discovery of the tumor and the operation, and the incidence of postoperative recurrences and metastases are summarized in tables. In 84 per cent of the cases the condition was first manifested by a lump, and in 8 per cent by pain.

Of 414 cases of cancer, recurrences have developed in 50.2 per cent. The three-year survivals in the malignant group equalled 43.1 per cent; the five-year survivals, 28.8 per cent; and the ten-year survivals, 10.3 per cent. The number of survivals in cases of malignancy in the center and the upper outer quadrant of the breast was much smaller than that in cases in which other areas of the breast were involved. CLAYTON F. ANDREWS, M.D.

TRACHEA, LUNGS, AND PLEURA

Parodi, F.: The Mechanism of Action of Artificial Pneumothorax on the Basis of Anatomopathological Observations (Il meccanismo d'azione del pneumotorace artificiale in base alle osservazioni anatomopatologiche). *Policlin.*, Rome, 1923, xxx, sez. prat., 489.

From a macroscopic and microscopic study of the lung in a fatal case of tuberculosis treated by artificial pneumothorax for a year, Parodi draws the following conclusions:

1. In the lung subjected to collapse the tuberculous infiltration retains its pathologic character.
2. Pneumothorax *per se* does not cause recovery, but aids it by favoring the proliferation of connective tissue.
3. It hinders but does not prevent the spread of the disease by the bronchial, hæmatic, or lymphatic routes.

4. In the beginning and for some time it acts chiefly mechanically by diminishing the areas of absorption.

W. A. BRENNAN.

Stewart, W. H.: Pulmonary Abscess Roentgenographically Considered. *J. Radiol.*, 1923, iv, 277.

While the clinical picture and physical examination are usually sufficient for the diagnosis, the roentgen examination is especially valuable in locating the lesion and giving accurate information as to its extent and the presence or absence of associated pathologic conditions.

The early process seen roentgenographically is a localized pneumonitis of varying degree. The shadow is more often oval than circular. In its center a lighter area soon appears, indicating cavity formation. The roentgenographic picture depends upon the amount of secretion present. If the cavity is filled, it is impossible to distinguish between the infiltration and the fluid. If it is only partially filled, a fluid level with a clear area above is seen. The infiltration varies greatly in character; usually the more acute the process the more dense the shadow. In cases of old abscesses, well-established pyogenic membranes are found and there is very little involvement of the lung surrounding the cavity. Before softening or gangrene occurs it is impossible to determine whether one is dealing with one or several abscesses.

The lesion most commonly mistaken for lung abscess on X-ray examination is a small sacculated empyema. Certain cases of sarcoma of the lung simulate the multiple form of pulmonary abscess. The chronic form of lung suppuration may lead to a diagnosis of pulmonary tuberculosis. In the latter, however, there is little, if any, infiltration surrounding the cavities, and the position, laboratory findings, and manifestations of the disease elsewhere in the lungs will reveal its character.

To demonstrate an abscess roentgenographically the chest must be examined in all positions. The author has found the prone lateral position, with the tube in front and the plate behind, most satisfactory, especially when the patient is unable to maintain the erect position. That cavities are more readily mapped out in this position is due no doubt to the fact that the abscess is usually oval with its long diameter extending from the root toward the periphery. Localization by means of the roentgen ray in a position other than that in which the patient is to be placed on the operating table is unsatisfactory.

It is better to describe the relation between the abscess and bony landmarks than to attempt to mark it on the skin. The ideal method of localizing a lung abscess is a fluoroscopic examination made with the adjustable head fluoroscope after the patient has been prepared and placed in position on the operating table. ADOLPH HARTUNG, M.D.

ESOPHAGUS AND MEDIASTINUM

Bircher, E.: Contributions on the Pathology of the Thymus Gland. II. The Surgical Treatment of Thymic Asthma and the Importance of the Thymus in Surgical Infections (Beiträge zur Pathologie der Thymusdrüse. II. Zur chirurgischen Behandlung des Asthma thymicum und die Bedeutung der Thymus bei chirurgischen Infektionen). *Deutsche Ztschr. f. Chir.*, 1922, cxxvi, 362.

From the autopsy records for the last three years of cases in which status thymico-lymphaticus was a factor, the author found that, especially in four infectious diseases, the incidence of enlargement of the thymus was extremely high. This was true in 85 per cent of the fatal cases of tetanus (six), in 80 per cent of those of acute infection of the gall-bladder (five), in 75 per cent of sixteen cases of diphtheria, and in eight cases of perforative appendicitis. That it was not a coincidence is evident because of the well-known susceptibility to infection of persons with the lymphatic habitus, in which, presumably, internal secretory conditions are involved. Bircher paid particular attention to the occurrence of thymus enlargement in young persons with diphtheria and in diphtheria suspects and observed a large number of cases of pure tracheostenosis thymica.

In the past eight years Bircher has treated ten cases of pure thymic stenosis in children. In most of these, chronic thymic asthma had been present for a long time and had suddenly become more severe. The jugular tumor formation was distinctly evident clinically, sometimes on bending the head backward. In all of the cases a considerable portion of the thymus was resected. In three, a low tracheotomy was performed first, but did not relieve the interference with respiration. Nine of the children were cured.

In four cases operated upon after the diagnosis of acute diphtherial stenosis (no diphtheria bacilli were found later) tracheotomy was unsuccessful, whereas resection of the thymus performed immediately thereafter cured the dyspnoea. Two of the patients were cured and two died.

In six (possibly seven) cases of true diphtheria with associated thymic enlargement in which the thymus was resected at the time of the tracheotomy there were two deaths. Therefore the mortality was only 30 per cent whereas ordinarily in diphtheria with associated status thymicus it is 75 per cent.

In nineteen of these twenty cases the thymus tissue showed histologically a distinct medullary hypertrophy; the Hassall corpuscles were enlarged but decreased in number.

Bircher disapproves of roentgen-ray therapy for persistent thymus as it is associated with the danger of causing thymic idiocy with total cessation of development as was observed by him in one case three years after an irradiation. In another case roentgen-ray therapy caused an aggravation of the symptoms, necessitating operation. MARWEDEL (Z).

SURGERY OF THE ABDOMEN

ABDOMINAL WALL AND PERITONEUM

Masson, J. C.: *Postoperative Ventral Hernia. Surg., Gynec. & Obst.*, 1923, xxxvii, 14.

During a period of four years 28,970 abdominal operations were performed at the Mayo Clinic, 596 (2.05 per cent) of which were for the repair of postoperative hernia. Recurrent umbilical and recurrent inguinal herniæ are not included. During the same period, 4,249 inguinal, 217 femoral, 327 umbilical, and 113 miscellaneous herniæ were repaired. The postoperative herniæ therefore constituted 14.66 per cent of the total number of operations for hernia; eighty-four were recurrent. The original operation had been performed at the Mayo Clinic in 134 cases and elsewhere in 462.

Postoperative herniæ develop usually as a result of sepsis. In many instances this is unavoidable when drainage must be instituted at the primary operation. The next most usual cause of postoperative herniæ is increased intra-abdominal pressure due to paralytic ileus, vomiting, coughing, hiccup, sneezing, or straining. Improper closure of the wound at the time of operation, which permits hæmorrhage and œdema and therefore favors poor coaptation, interferes materially with solid union. In certain debilitated and starved patients, wounds may be slow in healing.

The treatment is divided into preventive measures, such as the proper preparation of the patient for abdominal operation, the proper type of anaesthesia, proper closure of the wound with proper suture material, and postoperative care. The curative treatment includes pre-operative measures, such as reduction of obese patients, and the gradual reduction of the hernia which slowly brings the intra-abdominal tension to that required for the operation.

Local nerve blocking supplemented, if necessary, by nitrous oxide, ethylene, or ether is the anaesthesia of choice.

The manner of closing wounds depends on the portion of the abdomen incised. One hundred and eighty-nine herniæ occurred in a straight incision in the rectus muscle, 173 in a low midline incision, 123 in a split muscle or McBurney incision, fifteen in a high midline incision, and twelve in the rarer forms of incisions. In 280 cases (54.68 per cent), some form of drainage had been used. A low midline incision is about the only site of postoperative hernia not preceded by infection. To guard against this, the author opens the sheath of the rectus on each side and effects closure exactly as in the ordinary straight incision. In women with marked diastasis recti, it is advisable to excise the umbilicus and overlap the aponeurosis for a short distance.

Anatomical closure is the operation of choice if it can be effected without undue tension; otherwise plastic overlapping, preferably vertical, based on the same principle as the Mayo operation for umbilical hernia, is advisable. Undue tension must be avoided. The suture material of choice is twenty-day chromic catgut No. 1 or 2. Tension sutures of chromic catgut are best applied after the insertion of one row of a continuous mattress suture closing the peritoneal cavity. For cases in which the overlapping flaps consist mainly of scar tissue, the "living suture" (Gallie and LeMesurier), made of narrow strips of autogenous fascia lata, is advocated. These strips are sewed into the flaps in much the same manner as a stocking is darned. The wound is then packed with rubber tissue and partial closure is made with dermal sutures. The rubber pack allows ample drainage of the serum, blood, and broken-down fat. After forty-eight hours partial secondary closure is made.

The results are very satisfactory. Of the 596 patients, eighty-four of whom had had at least one previous operation, 134 (22.48 per cent) have weak wounds with more or less bulging, and only fifty-four (5.7 per cent) are complaining of slight inconvenience. Twenty (3.35 per cent) did not improve. There were four deaths, a mortality of 1.78 per cent.

E. E. LARSON, M.D.

GASTRO-INTESTINAL TRACT

Reh fuss, M. E.: *Diagnosis of Gastric Disease. Ann. Clin. Med.*, 1923, ii, 55.

The secretory and motor functions of the stomach are intimately associated but not entirely dependent upon each other. The ingestion of food sets up a complicated series of cycles, one secretory, the other motor. Psychic stimuli produced by emotion or through the special senses in the presence of food may have a marked effect on digestion. Various substances react in a more or less characteristic manner in the stomach, and the entire meat group causes a distinctly higher acidity than vegetables or cereals. Along the lesser curvature near the pylorus there are few acid cells. This area appears to have a lower resistance to the erosion of gastric juice than the rest of the stomach since it is here that most gastric ulcers develop.

In its motor function the stomach is in reality two organs as the cardiac portion contracts three or four times as often as the antrum. There are two groups of persons, those with comparatively slowly emptying stomachs and those with comparatively rapidly emptying stomachs. The substance which required the longest time for normal gastric digestion in the cases studied by the author was nuts, but in no in-

stance was there any retention after a period of six hours.

Certain organic diseases of the stomach affect the mucous membrane alone, others affect the sphincters and muscles, and a few cause general impairment. Systemic conditions may alter the functional output of the stomach either directly or reflexly. In cases of gastric disorders the symptoms are usually associated with some definite phase in the gastric cycle, occurring after the ingestion of food, during the active stage of digestion, or at the conclusion of digestion. In extra-gastric conditions the symptoms are usually more or less irregular.

With modern technique and examination of the stomach in every plane the X-ray will demonstrate, not only the situation of the lesion, but also, not infrequently, its nature.

Gastric analysis has three objects, viz.:

1. To measure the work of the mucous membrane. This it accomplishes in terms of secretion.

2. To measure the work of the musculature and sphincter. This it accomplishes in terms of gastric evacuation.

3. To demonstrate the presence of anything more than the meal and secretion. Fractional analysis is always preferable because very erroneous conclusions may be drawn from a single examination.

As a disease condition affects the mucous membrane or the muscles and sphincters, it will affect also the nature and character of the gastric work. A distinct alteration in the type of gastric secretion, either a hyperacidity or a subacidity, means only one thing and that is an alteration in the mucosal function. The evacuation of an Ewald meal in from one hour and forty-five minutes to two hours and thirty minutes may be considered normal. Evacuation in less than this time or requiring longer than three hours is abnormal and due to hypomotility, atony, or organic disease at or near the pylorus. These various disorders of secretion and motility may be the result of either intra- or extra-gastric disease.

CYRIL J. GLASPEL, M.D.

Watts, S. H.: *Cardioplasty for Cardiospasm.* *Ann. Surg.*, 1923, lxxviii, 165.

Freeman, L.: *An Operation for the Relief of Cardiospasm.* *Ann. Surg.*, 1923, lxxviii, 174.

WATTS believes that in cases of cardiospasm surgery is justifiable only when the hydrostatic dilator cannot be passed through the cardia with the aid of a silk thread guide. Gastrostomy is only a palliative measure. Watts reviews the literature and reports in detail a case in which he effected a cure by cardioplasty.

FREEMAN reports a case of cardiospasm associated with dilatation and tortuosity of the œsophagus in a man of 20 years. At operation, the upper segment of the dilated and rather loose œsophagus was invaginated into the lower segment without opening the lumen and this intussusception was fixed by a few stitches of chromic gut. Primary union occurred.

EMIL C. ROBITSHEK, M.D.

Murray, H. A., Jr.: *The Chemical Pathology of Pyloric Occlusion in Relation to Tetany: A Study of the Chloride, Carbon Dioxide, and Urea Concentrations in the Blood.* *Arch. Surg.*, 1923, vii, 166.

Gastric tetany is described as a form of nerve hyperirritability associated with vomiting, dilatation of the stomach, and pyloric occlusion and due usually to a lesion near the pylorus. The treatment is largely surgical. In this article the author reports the blood findings and clinical histories of seven cases of obstruction at or near the pylorus and the results of experimental work on dogs.

The condition was first described in 1869 by Kussmaul, who attributed it to desiccation of the tissues. In experimental work on dogs, MacCallum found that it could be produced after experimental occlusion of the pylorus by frequent washing of the stomach. Chemical changes found after pyloric occlusion have been compared by a number of investigators to those found after parathyroidectomy. In a study of the effect on the nerves of changes in the ratio of sodium to calcium it was discovered that nerve irritability is increased by a relative increase in the concentration of the sodium and decreased by a relative increase in the calcium. MacCallum reported that pyloric occlusion is followed by a decided increase in the electrical irritability of the nerves. In the investigations made by the author and others it was found that when tetany was produced by pyloric obstruction the blood chemistry was markedly changed, showing a rise of the carbon dioxide of the plasma, a fall in the chloride content of the blood and plasma, an increase in the phosphorus and sulphur, and a slight rise in the hydrogen-ion concentration. In pyloric stenosis the hydrochloric acid cannot pass into the intestines and become resorbed. When it is expelled by vomiting or removed by gastric lavage a disturbance in the acid-base balance in the blood and tissues results.

In cases of persistent vomiting one of the most important investigations is the determination of the carbon-dioxide content of the plasma. If this is greatly increased in the absence of a history of alkali therapy—to over 80 per cent by volume—the presence of obstruction at or near the pylorus is indicated. If it continues to rise, tetany can be predicted.

Gastric tetany must be differentiated from the tetany of hypoparathyroidism, the tetany of hyperpnea, and the tetany following the administration of alkalies or sodium salts. HAROLD M. CAMP, M.D.

Schindler, R.: *Gastroscoptic Studies on the Healing of Gastric Ulcer* (Gastroskopische Untersuchungen ueber die Heilung des Ulcus rotundum ventriculi). *Muenchen. med. Wchnschr.*, 1923, lxx, 421.

Ulcers at the pylorus usually escape gastroscoptic diagnosis on account of their location, while those in the fundus are easily seen. The healing of ulcers can be studied exactly only with the gastroscope,

as roentgen findings, such as the disappearance of niches, are not conclusive.

The author reports three cases in which he studied the process of healing gastroscopically. In one case of ulcer on the lesser curvature, which he reports in particular detail, the lesion had become smaller and shallower at the end of twelve days and was then bounded by normal mucosa surrounded by a deep red, injected, circular zone. After thirty-one days it was the size of a pea, the mucosa of the cardinal edge was reddened, and the circular zone had disappeared. After thirty-eight days it had become epithelialized. After fifty-seven days a yellow, retracted scar was seen.

The Leube treatment and, as medication, a mixture of barium sulphate, extract of belladonna, and papaverin are recommended. TIEGEL (Z).

Charrier: Three Cases of Perforation of the Stomach by Ulcer (Trois cas de perforation de l'estomac par ulcère). *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 494.

Ferrari: Two Cases of Perforation of the Duodenum by Ulcer (Deux cas de perforation d'ulcère du duodénum). *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 494.

In two of the three cases of ulcerous perforation of the stomach reported by Charrier, only suture of the perforation was done; both patients recovered. In the third case the perforation, which was prepyloric, was surrounded by a thick zone of induration and the pylorus appeared greatly constricted. A gastro-enterostomy was therefore done in addition to the suturing of the perforation. The patient died the second day after the operation.

Gastro-enterostomy was done in addition to suturing of the perforation also in one of Ferrari's cases in which the ulcer was situated in the strictured pyloric canal. The patient died fifteen hours after the operation.

Bréchet, in discussing these reports, called attention to the fact that both of these surgeons, who are experienced, avoided a partial gastrectomy. In the two cases in which gastro-enterostomy was done, it was necessitated by the stricture of the pylorus. Bréchet believes that in cases of perforated ulcer minimal surgical intervention should be the rule and that this should consist of excision followed by suture and burial of the edges of the perforation by omentoplasty or, in cases without extensive induration, excision of the indurated area and gastro-enterostomy. Partial gastrectomy is indicated only exceptionally when more conservative treatment is impossible. W. A. BRENNAN.

Balfour, D. C.: The Use of the Cautery in Peptic Ulcer. *Ann. Surg.*, 1923, lxxviii, 206.

The author bases his discussion of the use of the cautery in peptic ulcer on 725 cases in which the cautery was employed in the Mayo Clinic. Gastric ulcers may be arbitrarily divided into three groups: (1) those in which the crater is 1 cm. or less in dia-

meter, (2) those between 1 and 2 cm., and (3) those over 2 cm. A large percentage of the ulcers now seen are small, and 90 per cent of them involve the lesser curvature. Since the cautery is particularly suitable for such cases it has a wide applicability.

The method originally described for the use of the cautery in the treatment of these small ulcers is followed, but the importance of thorough excision of the lesion by the cautery is emphasized, as unquestionably certain failures to cure were due to inaccuracy in this respect. Such excision is combined, of course, with gastro-enterostomy.

Ulcers with medium-sized craters should be exposed by an opening made with the cautery at the edge of the induration and, with the crater of the ulcer in view, its wide excision made with the cautery knife. If such ulcers are at the pylorus, partial gastrectomy will be preferred by certain surgeons, and their experience may justify it. Cautery excision combined with gastro-enterostomy has been performed in the Clinic in 329 cases of gastric ulcer, with a mortality rate of 2.12 per cent, a rate lower than that of any other type of operation performed for gastric ulcer in the Clinic. In one series of 148 consecutive cases there was no operative mortality. Eighty per cent of the patients report satisfactory results from the operation, 14 per cent are benefited, 4 per cent failed to derive benefit, and 1.1 per cent are known to have developed subsequent ulceration.

The cautery is used also in cases of ulcers high on the lesser curvature. These in any other situation in the stomach would indicate partial gastrectomy.

As in the entire series of 725 cases there have been only 1.1 per cent of recurrences of ulcer, including gastrojejunal, the fear that the cautery may itself produce subsequent ulceration is quite unfounded. Similar results are found in connection with cancer developing after operations for gastric ulcer. Of 418 persons subjected to cautery excision of gastric ulcer, eight (1.9 per cent) subsequently died of cancer of the stomach. This group, however, includes cases of inaccessible lesions which were classified at the time as ulcers but which, in some cases, undoubtedly had become malignant.

In cases of duodenal ulcer the indications for the use of the cautery are not so definite, but the method may be employed satisfactorily when the ulcers bleed or there are other reasons for excising. If the bleeding ulcers are small and on the anterior wall of the duodenum, the point of a Pacquelin cautery may be easily thrust through the lesion. Such excision has done more to eliminate the possibility of subsequent hæmorrhage than any other one procedure.

D. C. BALFOUR, M.D.

Judd, E. S., and Rankin, F. W.: A Technique for the Resection of Gastric and Duodenal Ulcers. *Surg., Gynec. & Obst.*, 1923, xxxvii, 216.

A study of the cases of gastric ulcer at the Mayo Clinic with reference to their end-results and the type of operation employed has demonstrated that a definite percentage of the patients with gastric

ulcer on whom resection was performed without gastro-enterostomy failed to obtain satisfactory results and that a similar percentage of patients on whom a gastro-enterostomy was performed but the ulcer was left intact also experienced difficulty. It is therefore believed advisable to supplement excision of the ulcer with gastro-enterostomy, and this procedure is now followed in most cases.

A method of excising a duodenal ulcer which has been used in a large series of cases is described. Excision permits a direct attack on the primary cause of the trouble, makes possible an examination of the entire duodenum, is free from the complications attending gastro-enterostomy, and in cases of bleeding ulcer permits the obliteration of the offending vessels. In many cases it is impossible to excise the ulcer because of its location and the fixation of the duodenum.

The duodenum is mobilized by dividing the bands of adhesions to the neighboring organs. The exposure is increased by delivering the pyloric half of the stomach onto the anterior abdominal wall and making slight traction upon it. The ulcer is excised by inclusion in two semilunar incisions. The upper incision is placed so that its center lies opposite the center of the pyloric ring and its convexity is upward. The first incisions extend only through the peritoneal coat.

The lumen of the duodenum is opened by extending the incision through its muscularis and mucosa. Ulcers on the posterior wall are seared with the cautery. The duodenum is closed in layers. The mucosa is closed separately and accurately, and the seromuscular coat is inverted by a single suture of catgut.

The convalescence in the cases so treated has been unusually smooth and free from vomiting and other distressing sequelæ. A. J. SCHOLL, M.D.

Aoyama, T.: The Formation of Hemorrhagic Erosions in the Mucosa of the Excluded Pylorus (Ueber die Bildung der haemorrhagischen Erosionen in der Schleimhaut des ausgeschalteten Pylorus). *Zentralbl. f. Chir.*, 1923, 1, 252.

The author reports a case of hæmatemesis in which the hæmorrhages recurred after a simple gastro-enterostomy and again following exclusion of the pylorus. A cure was effected only after resection of the pyloric portion which showed three small erosions. BANGE (Z).

Drummond, H.: Retrograde Intussusception of the Small Intestine After Gastro-Enterostomy. *Brit. J. Surg.*, 1923, xi, 79.

The author's case of recurring retrograde intussusception of the small intestine after gastro-enterostomy, added to those reported in the literature, makes a total of fourteen cases. Drummond believes the condition must be recognized as one of the complications following gastro-enterostomy.

The diagnosis is suggested by the history of a previously performed gastro-enterostomy, sudden

gripping epigastric colic, the vomiting of blood, occasionally the presence of a palpable tumor in the left hypochondriac region, and the absence of rigidity, distention, and acute tenderness.

The condition seems to be brought about by too rapid emptying of the stomach causing irritation of the jejunum and forcible antiperistalsis, rather than by any particular type of operation.

The treatment is surgical. There seems to be no reliable method of prevention.

WILLIAM E. SHACKLETON, M.D.

Tees, F. J.: Four Cases of Volvulus of the Small Intestine, with Observations on the Etiology. *Canadian M. Ass. J.*, 1923, xiii, 400.

Volvulus was found in 4 per cent of 669 cases of intestinal obstruction seen at the London Hospital during a period of thirteen years. In approximately 25 per cent of these it occurred in the small intestine. In 2,315 cases of obstruction reported in continental Europe it was found in 16.9 per cent, and in one-third of these involved the ileum.

The author reports four cases of volvulus of the small intestine which were seen within a few months at the Montreal General Hospital. Each presented unusual points of interest. In the first case, that of a laborer, the condition developed suddenly after the eating of a heavy meal. At examination the next morning a definite mass was found to the left of the umbilicus. When the patient was being examined by a consultant, the mass suddenly disappeared and he experienced relief. He then slept well for a number of hours, but later complained of mild pain in the abdomen, and vomited blood. The abdomen was soft and enemas were returned clear. The temperature was 99.4 degrees F., the pulse 128, and the leucocyte count 23,200.

At operation, performed about thirty-six hours after the onset of the condition, the volvulus was easily reduced by rotating the bowel to the left 180 degrees. The damaged bowel was resected and an end-to-end anastomosis was done. It was obvious in this case that the patient had had a volvulus which had become partially corrected. The obstruction due to the twisting was relieved, but the acute strangulation over a period of twelve hours had obliterated the lumen.

The second case was that of a young man admitted to the hospital on account of frostbite of the extremities and of the left side of the abdominal wall. Moist gangrene developed in the hands and feet, and the patient appeared very toxic before any line of demarcation was evident. On the tenth day vomiting occurred several times. An enema was expelled well colored and with flatus. This was followed by severe and increasing epigastric pain. The next morning the abdomen was markedly rigid and moderately distended, suggesting general peritonitis. The general condition was poor, the temperature 103.4 degrees F., and the pulse 124.

At operation a high volvulus was found and reduced with difficulty. The patient failed to recover

from the toxæmia and died the following day. An ecchymotic spot was found on the inner surface of the abdominal wall corresponding to the frostbitten area seen externally. This, in the author's opinion, lowered the vitality of the underlying bowel, and when large amounts of liquid were given to combat the toxæmia, the increased peristalsis caused the bowel to twist.

The third case was that of a man 70 years of age who gave a history of glycosuria for a period of years and of constipation with occasional periods of diarrhoea for the last six months. A weight loss of 40 lbs. in two years had been associated with an increase in girth. For the past three days there had been no bowel movements although large quantities of laxatives had been taken. There was no pain or vomiting, and no result from enemata. The abdomen was greatly distended but not tender. Considerable tympany was noted. There was no palpable mass in the abdomen, and the rectal examination was negative. The patient refused an exploratory laparotomy. The following day the abdominal distention was markedly increased, and he consented to an operation. The urea nitrogen equalled 64 mgm. per 100 c.cm., and the blood sugar was 0.2 per cent.

Operation disclosed a hard, unquestionably malignant tumor of the sigmoid causing complete obstruction of the bowel. The terminal 4 or 5 ft. of the ileum and the cæcum were involved in a volvulus contra-clockwise. This was reduced and a colostomy was done. After the operation, persistent fæcal vomiting developed in spite of gastric lavage and other measures to combat it. The following day the urea nitrogen dropped to 30 mgm. per 100 c.cm. The patient then developed a double bronchopneumonia and succumbed a few days later.

The fourth case was that of a man aged 43 years who gave a history of occasional attacks of abdominal pain during the previous six months. Four days prior to his admission to the hospital there had been a recurrence associated with vomiting. His physician made a diagnosis of acute gastritis and prescribed large doses of morphine and a liquid diet. Three days later he was given a large dose of castor oil. This was followed by an increase in the pain and persistent nausea and vomiting, but no bowel movements. The abdomen was scaphoid, tender, and resistant, but not rigid. There was no visible peristalsis. At operation on the fourth day a large volvulus, contra-clockwise, was found involving the upper four-fifths of the small intestine. This was reduced, and the appendix, which was acutely inflamed, was removed. The operation was followed by recovery. The patient returned to work during the fourth week.

In each of the four cases in this report the distal bowel was inactive and the proximal bowel was thrown into unusual peristaltic activity, an antagonism most favorable for the production of a volvulus.

Carey has shown that in the dog, cat, sheep, cow, and pig, the muscular coats of the small intestine

are not the classical inner circular and outer longitudinal muscle fibers, but fibers arranged in spiral form, the inner a close spiral, and the outer coat more elongated, making a complete turn every 20 to 50 cm. or more. This arrangement imparts a screw-like action to peristalsis and may be a factor in the production of volvulus.

From the cases reported in this article and his investigations, the author concludes that the generally accepted theory regarding the production of volvulus is erroneous as it frequently occurs in the absence of adhesions or other structural abnormalities of the intestinal tract. He believes that greater stress should be placed on disordered peristalsis leading to an antagonism between two segments of bowel unequally filled. HAROLD M. CAMP, M.D.

Kerr, H. H.: *Intestinal Surgery.* *J. Am. M. Ass.*, 1923, lxxxi, 641.

Kerr calls attention to the fact that of the five histologic coats of the intestinal wall only the peritoneal and fibrous are important from a surgical standpoint. All intestinal sutures should pass through the fibrous coat as this will keep them from tearing out and prevent the occurrence of leakage. The uniting suture should invaginate the peritoneal coat so that the walls of the stroma are completely surrounded by the peritoneum. One absorbable suture uniting the fibrous coat and invaginating the peritoneal coat is all that is required, even in stomach resection. A larger opening is obtained by dividing the intestine at an angle of 45 degrees. This will double the area produced by transverse section.

The author gives in detail the technique of the "basting stitch method," devised by Parker and himself in 1907. Since this method has been used with the technique described he has had no failures.

WILLIAM E. SHACKLETON, M.D.

Pannett, C. A.: *The Technique of Axial Anastomosis of the Alimentary Canal.* *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Surg., 81.

In axial anastomosis of the bowel an abscess often forms at the mesenteric border which is due, not only to a lack of peritoneal covering, but also to interference with the blood supply. As the strongest adhesions are present where a peritoneal surface comes into contact with a raw surface, a good closure may be obtained by rotating the cut bowel so that the two raw mesenteric surfaces will be brought into contact with a peritoneal surface of gut.

In the author's technique the bowel ends are crushed by forceps in such a way that when they are apposed the mesenteric angles will not be opposite. The ends are then sutured by through-and-through stitches, gross soiling being prevented by clamping the bowel with rubber clamps a short distance from the openings. This suture line is covered by a sero-muscular stitch, the posterior layer of which was inserted before the through-and-through stitch.

MARCUS H. HOBART, M.D.

Luquet: A Procedure to Facilitate the Execution of the Connell Stitch (Un procédé facilitant l'exécution du point de Connell). *Presse méd.*, Par., 1923, xxxi, supp. 552.

The disadvantage of the Connell intestinal stitch is the slowness of its execution. The author believes it can be simplified and made more rapid by the use of proper instruments. By employing Judd's forceps and by pinching up folds of the intestinal wall, the four manœuvres of the stitch may be reduced to two, but this is not quite satisfactory if the wall is thick, as in the stomach, and is difficult when corners are to be turned. On Pauchet's service they now use a special 7-cm. needle with two triangular points and a central eye which was designed by Becait and can be employed very easily with the left hand.

Suturing is begun at one end of the gutter by holding the needle between the left index finger and thumb by the rounded portion between the eye and point. With the other point of the needle the wall of the gut is transfixed from without inward up to a point where the eye arrives at the wall. Then the part of the needle which has passed through the wall is grasped in the right hand and the needle is drawn completely through without changing hands. The needle point which has just come through is then turned backward through the same wall, but this time from within outward. As soon as it has traversed the gut it is grasped with the left hand to pull it through. The opposite wall of the gut is sewed in the same manner, the hand action being reversed. In this manner the use of a dissecting forceps to hold the tissues is rendered unnecessary. The assistant picks up each wall alternately and presents it to the operator's needle point. When once the habit of changing hands automatically has been acquired, the ease and rapidity with which the Connell suture may be applied is astonishing.

KELLOGG SPEED, M.D.

Foucar, H. O.: Intermittent Duodenal Obstruction in Children. *Med. Clin. N. Am.*, 1923, vii, 81.

Two cases of intermittent duodenal obstruction in children are presented to direct attention to the pathologic conditions found in the upper gastrointestinal tract, other than the stomach, which may be associated with recurrent attacks of vomiting.

CASE 1. The patient was a boy 4 years of age who was brought to the Clinic because of attacks of vomiting which began when he was one week old and recurred at irregular intervals three or four times a year, each attack lasting one to three weeks, during which time the vomiting occurred from two to ten times daily. The vomiting was projectile and copious, and without relationship to meals. There was also cramp-like aching referred to the region of the umbilicus. This condition was complicated by bronchiectasis of four months' duration.

Examination of the gastro-intestinal tract, including roentgen-ray study, was negative. One week later, during a typical attack, the stomach was seen

to be dilated and peristaltic waves were present. Fluoroscopic examination revealed a definite obstruction in the duodenum 15 cm. from the pylorus. A diagnosis of intermittent duodenal obstruction was made and surgical intervention was advised.

Operation disclosed an extensive chronic adhesive peritonitis which had matted the small intestines together. The cause of the attacks was found to be a recurrent volvulus of the jejunum which, because of the adhesions, also closed the duodenum. Because of the early onset of the symptoms, it was concluded that the adhesions were the result of fetal peritonitis. The adhesions were freed, and the patient has had no further trouble.

CASE 2. The history of this case was similar to that of Case 1, the essential points being the early onset of recurrent attacks of vomiting with definite peristaltic waves visible in the epigastrium. The patient was a boy 18 months old. When the child was first seen, in an interval between attacks, the examination of the gastro-intestinal tract was negative. Two weeks later he began vomiting and peristaltic waves were visible. A diagnosis of intermittent duodenal obstruction was made.

At operation no actual obstruction was found, but the mesentery was oedematous and markedly thickened by enlarged lymph nodes. The mechanism in this case seemed to be transitory obstruction due to inability of the intestines to adjust themselves because of the thickened mesentery.

H. O. FOUCAR, M.D.

Huddy, G. P. B.: Duodenal Diverticula, with Report of a Case of Gangrenous Diverticulitis. *Lancet*, 1923, ccv, 327.

Duodenal diverticula may be congenital or acquired. Congenital pouches constitute only a small percentage of duodenal diverticula. The acquired form may be the result of traction from without or of pressure from within associated with local weakness of the duodenal wall.

The diverticula may arise from any of the three portions of the duodenum, but the majority are found in the second portion on the postero-internal aspect, in close relation to the ampulla of Vater. From its duodenal origin, the pouch may extend in any direction, but most commonly extends inward toward the concavity of the duodenum where it comes into close relation with the pancreas. The size of diverticula ranges from that of a pea to that of a hen's egg. The average size is that of a walnut.

The diverticular wall is thin. In the true congenital type of diverticulum it is composed of all the layers of the duodenum. In the more common false or acquired type it is composed of mucosa in which Brunner's glands are usually absent. The muscularis is well defined at the base, but deficient over the rest of the sac.

Duodenal diverticula probably occur in from 1 to 2 per cent of human beings. They may be formed at any age, but are most common after the age of 50 years.

The pathologic conditions which may be superimposed upon diverticula are acute or chronic diverticular inflammation, chronic duodenal catarrh, and pancreatitis, duodenal dilatation, and obstruction of the biliary and pancreatic ducts.

Usually these pouches cause no physical signs or symptoms. The diagnosis is made only when there is a superimposed pathologic condition.

As a rule the absence of symptoms renders treatment unnecessary. If the pouch is discovered, the treatment is invagination if the diverticulum is small and excision if it is large.

SAMUEL KAEN, M.D.

Mucharinski, M. A.: Cancer of the Duodenum (Zur Frage ueber den Krebs des Duodenums). *Nowy Chir. Arch.*, 1922, ii, 586.

Carcinoma of the duodenum is very rare. The author reports a case in which recovery followed resection and cites the literature regarding the pathologic anatomy, the symptoms, and the operative treatment. Operation has been performed in twenty cases of carcinoma of the papilla of Vater and in two cases of peri-ampullary, five cases of suprapapillary, and one case of prejejunal carcinoma. In the cases of suprapapillary carcinoma it consisted of a palliative gastro-enterostomy. SCHAAK (Z).

Koch, K.: Resection of the Duodenum. Ulcer at the Papilla (Duodenalresektion. Ulcus ad papillam). *Rozhledy v. chir. a gynaek.*, 1923, ii, 157.

In resection of the duodenum, experience and training are of very great importance. The surgeon must be of the opinion that there is no duodenal ulcer which cannot be resected. In the Bratislava clinic resection is regarded as the method of choice in chronic cases.

The operation may be divided into three parts, viz., dissection, care of the duodenal stump, and anastomosis. For the dissection there are no rules except that it must be done according to the indications of the particular case. Closure of the duodenum is done by the method of Kostlivy. The serosa is sutured sagittally over the stump so that a small part of the stump remains uncovered; over the latter part is placed the head of the pancreas. Anastomosis is done by the Kroenlein-Reichel-Pólya method.

The author reports two cases of ulcer at the papilla. In the first it was possible to conserve the papilla since the lesion lay below it, on the anterior wall of the intestine. The obliquely sutured duodenum had the appearance of a continuation of the choledochus.

In the second case a typical stenosis had been present for fifteen years. The cicatricially stenosed papilla was resected and the choledochus then implanted into the duodenal stump. The pancreatic duct which was embedded in scar tissue, could not be dissected out and was therefore sutured with the parenchyma. Both patients make a quick recovery.

KOCH (Z).

Foss, H. L.: Meckel's Diverticulum and Intestinal Obstruction. *J. Am. M. Ass.*, 1923, lxxxi, 99.

Meckel's diverticulum is an embryonic remnant which is present in about 1.5 per cent of all persons. It consists of a finger-like projection extending from the surface of the small bowel for a distance of from 2 to 25 cm., and is found within the lower 6 ft. of the ileum. The responsible factor is failure of the vitelline or omphalomesenteric duct to atrophy, which normally occurs about the third month of intra-uterine life. The remains of the obliterated blood vessels which once accompanied the duct may form a cord-like attachment between its tip and the abdominal wall, especially the umbilicus. These bands are often responsible for knotting of the diverticulum which results in intestinal obstruction. The diverticulum is subject also to inflammation and suppuration which produce a syndrome usually mistaken for that of acute appendicitis. In every case of acute intestinal obstruction the possibility that a Meckel diverticulum is responsible should be considered. As a rule this cannot be differentiated from other causes of obstruction such as volvulus, intussusception, adhesions, etc. It should be looked for in every case diagnosed as acute appendicitis in which an apparently healthy appendix is found at operation.

Foss reports a case of his own in which a diagnosis of acute intestinal obstruction with volvulus of the ileum was made. This case presented acute abdominal symptoms and a small spherical mass just beneath the umbilicus. Operation revealed a volvulus of 2 ft. of the lower ileum due to a Meckel diverticulum which was attached by its tip to the root of the iliac mesentery and formed an arch under which a loop of ileum had become strangulated. Resection and an end-to-end ileocolostomy were done. Convalescence was uneventful.

C. J. GLASPEL, M.D.

Vance, B. M.: Traumatic Lesions of the Intestine Caused by Non-Penetrating Blunt Force. *Arch. Surg.*, 1923, vii, 197.

The author reports twelve cases that came to autopsy. While they are too few to permit the deduction of definite conclusions, they present certain facts worthy of emphasis regarding the anatomical and clinical peculiarities of intestinal injuries caused by blunt force.

The intestine may be crushed, torn, or burst by pressure from within. In many instances the mechanism of the violence may be recognized both from the clinical history and the anatomical findings at operation or autopsy, but in other cases conclusions cannot be drawn with the same degree of certainty. In the cases reviewed, death resulted from intra-abdominal hæmorrhage whenever there were associated mesenteric and visceral injuries. Most of the deaths, however, were due to peritonitis. In two cases in which the duodenum was perforated a retroperitoneal cellulitis developed.

It is apparent that the treatment of these injuries is very unsatisfactory. The mortality is high, but

almost all persons with such injuries die if they are not operated upon. Berry cites only twenty-six recoveries in 114 cases treated surgically, and Tschistossersdoff only eight recoveries in forty-seven cases. The longer the operation is delayed after the injury, the less the chance of recovery. Therefore prompt recognition of the condition is of great importance.

A very slight blunt force is sufficient to cause an intestinal injury and various circumstances may arise which will delay the appearance of the characteristic clinical signs. Therefore in all casualties in which there is a possibility of violence to the abdominal parietes the possibility of rupture of the intestine should be borne in mind and the case treated accordingly.

It is the opinion of the staff of the first surgical division of Bellevue Hospital that an exploratory laparotomy should be performed in every case of blunt trauma in which it is impossible to exclude an injury to hollow viscera. Under these circumstances operation is deferred only if the patient is so nearly moribund or in such shock that surgical treatment would itself prove fatal. The absence of the signs of abdominal distress shortly after injury does not contra-indicate surgical interference, as it does not necessarily prove the absence of a dangerous abdominal lesion. The policy of early operation may not be successful in every instance, but its advantages outweigh any possible disadvantage.

CARL D. NEIDHOLD, M.D.

Aaron, C. D.: The Treatment of Spastic Constipation. *Am. J. M. Sc.*, 1923, clxv, 816.

Spastic constipation is less common than atonic constipation, but both forms may be associated. The increased irritability of the vegetative nervous system may be due to disease of abdominal or pelvic organs. Vagotonia induces spasm of the circular muscles of the intestines and contraction of the colon. A spasm of a few isolated loops of intestine retards evacuation. Spasms of the large intestine occur most frequently in the transverse colon, the hepatic, splenic, and sigmoid flexures, the rectum, and the anus.

The characteristic symptoms of spastic constipation are delayed faecal discharge and intestinal colic usually preceding defaecation and associated with varying degrees of abdominal pain with or without meteorism affecting the entire abdomen or only certain portions of the intestine. The pain may continue for hours and terminate with a large evacuation. On palpation the descending colon and sigmoid flexure feel like a thick rope. There is frequent desire for defaecation, and evacuation is incomplete. High-grade spastic contraction is not permanent and hence is compatible with the forward movement of intestinal contents. Spastic and atonic conditions may alternate. There may be retention of faeces in the ascending colon and a spasm of the transverse colon. When prolonged haustral segmentation occurs, the faeces are formed into irregular

balls, while in proctospasm the faeces are cylindrical or ribbon-like.

Spasticity of the colon is more common in women than in men, probably because of social conditions, the nervous strain on women of the higher classes, and the causal relation between intestinal function and female pelvic disease.

It is easy to differentiate a contracted from a full intestine by physical examination repeated at various times during the day and by X-ray examination. The presence of proctospasm is revealed by the tonus of the anal sphincter; the rectum fits tightly around the examining finger.

The treatment should include physical and mental relaxation; a complete rest in bed or a fresh-air régime may be sufficient to induce normal defaecation. The diet should be free from mechanically or chemically irritating foods and should be such as will render the faeces pasty and soft and the intestinal mucous membrane slippery. Cooked vegetables and fruits, easily digested fats, cream cheese, soft boiled or raw eggs, curds mixed with cream, honey, etc., may be allowed. Atropine paralyzes the peripheral ends of the autonomic system and relaxes the spastic intestine. Papaverine and benzyl benzoate are valuable drugs. The use of glycerine enemata, suppositories, and most laxatives is contra-indicated. Liquid petrolatum in tablespoonful doses three times daily may be tried. Fleiner's oil enemata are extensively used; these consist of an injection of 250 to 500 c.cm. of pure olive oil at first given daily, then on alternate days, and subsequently twice a week for a period of several months. The oil may be retained over night or may be given at 6.00 a.m. and retained for three or four hours. It lubricates the gut, softens the faeces, and forms a protecting coat over the inflamed mucous membrane. Some of it probably breaks up into fatty acids and stimulates peristalsis. It causes practically no discomfort, but some patients have a sensation of tasting oil after an enema. If spontaneous evacuation does not follow retention of the oil, a small lukewarm soft-water enema may be given. Abdominal massage is contra-indicated, but the application of heat may help to overcome the spasms.

WALTER C. BURKET, M.D.

Strauss, A. A.: Ulcerative Colitis. *Surg. Clin. N. Am.*, 1923, iii, 1033.

Strauss reports two cases. He believes it is impossible to cure an ulcerative bowel by diet and medication alone as long as the faeces are passing through it, and that therefore medical treatment should be preceded by early surgical intervention to put the bowel at rest.

He recommends ileostomy followed in five or six days by irrigation through the distal loop of the ileum with 3 or 4 qts. of normal saline solution. In conclusion he states that it is no more difficult or dangerous to do an ileostomy through a gridiron incision under local anaesthesia than an appendectomy.

EMIL C. ROBITSHEK, M.D.

Hughson, W.: Chronic Ulcerative Colitis and Its Treatment. *Virginia M. Month.*, 1923, 1, 304.

The author discusses those cases of chronic colitis to which none of the usual causes can be assigned. The most probable predisposing factor in this condition is a lowering of the resistance of the colon due to bacterial infection, improper diet, or amœbic dysentery.

The extent of the disease depends upon its duration. At first there is chronic inflammation with superficial ulceration of the mucosa. As healing takes place, scar tissue is formed and strictures may develop. Deep ulceration may lead to perforation. The diagnosis is made from the history of diarrhœa, abdominal cramps, the passage of mucus, blood, and pus, a loss of weight, and progressive prostration, and a systematic exclusion of all other types of dysentery.

As the disease begins in the rectum and the sigmoid portion of the bowel, the finding of the ulceration on proctoscopic examination will rule out cancer and syphilis. In the early cases the X-ray reveals an increase in the peristalsis, but later the colon becomes a thick tube without haustrations.

No single form of treatment is successful in all cases. Irrigation of the colon with antiseptics and bland oils seems to be the most common method. The diet must be regulated to prevent fermentation. Surgical intervention is often necessary; Brown's ileostomy seems most feasible. Ileocolostomy and resection of the colon should be reserved for the more advanced cases. WILLIAM J. PICKETT, M.D.

Brown, P. W.: Duodenal Enzymes in Chronic Ulcerative Colitis. *Med. Clin. N. Am.*, 1923, vii, 97.

In a study undertaken to determine whether the duodenal enzymes are a factor in the etiology of ulceration of the colon, the McClure, Wetmore, and Reynolds method of determining enzymatic activity was used. It was found that the activity is high in chronic ulcerative colitis, and its degree seemed to bear a relationship to the activity of the disease. In one case in which an ileostomy was done the enzymatic activity of the discharge from the ileostomy wound was as powerful as that of the duodenal contents. This enzymatic activity explains the digestion of the skin around ileostomy wounds and may be the factor causing ulceration of the colon if a decrease in the resistive power of the wall of the large intestine is assumed.

P. W. BROWN, M.D.

Kolodny, A.: The Fat Reactions in Appendicitis and Cholecystitis. *J. Iowa State M. Soc.*, 1923, xiii, 346.

For some time pathologists have noted an accumulation of fat in the walls of chronically inflamed gall-bladders and appendices.

In the appendix the fat is found deposited in the submucosa and is present in largest amount in the distal part where inflammation is most frequent and severe. Associated with these intramural deposits

of fat is an extramural reaction consisting of an increase of fat in the mesentery.

In all cases of cholecystitis, accumulations of fat were found in the subserous layer of the gall-bladder, this accounting for the characteristic yellow color. These deposits, like those in the appendix, do not depend upon the patient's state of nutrition and do not disappear in starvation.

In gastric and duodenal ulcer and chronic gastritis, deposits of fat were found in the subserous layers of the stomach and duodenum in 40 per cent of the cases. In cases of salpingitis no such deposits were discovered.

This difference between the organs of the digestive tract and the fallopian tubes may be explained by the difference in the composition of the blood plasma circulating in their walls, i.e., by the high fat content of the blood of the portal system.

The prominent difference in fat deposits between the gall-bladder and appendix on the one hand and the stomach and duodenum on the other is explained by the weak peristalsis common to the appendix and gall-bladder which leads to congestion and results in the deposition of fat from the blood of the portal vein system.

There is little evidence to prove that these fatty deposits are a compensatory function or an attempt by the body to protect the surrounding organs from threatened perforation. As lipoids readily absorb toxins, the more reasonable explanation appears to be that they accumulate in an organ to protect the cells of that organ from toxic injury. The correct explanation will probably be found only when the physiology and chemistry of the lipoids become better understood. CYRIL J. GLASPEL, M.D.

Macdonald, C.: Acute Sigmoiditis: Perforation and General Peritonitis Following Rectal Injection. *Med. J. Australia*, 1923, ii, 10.

The patient whose case is reported had had obstinate constipation for years. Two days after eating a very heavy meal he was seized with severe abdominal pain, diarrhœa, and tenesmus. The stools contained no mucus or visible blood and there was no evidence of peritoneal irritation. The administration of bismuth and opium was followed by improvement, but two days later the symptoms became more severe and the stools showed gross blood. Without orders from a physician, he was given a rectal injection of soap and water. The patient stated that during this procedure he heard "a click as if something had burst." The symptoms of generalized peritonitis followed almost immediately.

At operation a few hours later the descending and the pelvic colon were greatly thickened and cedematous, and a pinhole perforation was discovered at about the middle of the sigmoid. The peritoneal cavity was filled with intestinal contents. There was no evidence of malignancy or constriction. The patient died twelve hours later.

CARL D. NEIDHOLD, M.D.

Hayem, M. I.: A Modification of Lambret's Colostomy (Modification au procédé d'anus iliaque de Lambret). *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 414

In Lambret's method of performing a colostomy the inguinal incision to mobilize and divide the pelvic colon is made below the pedicle of the flap. Consequently the blood supply of the pedicle is insufficient to resist the inevitable infection from the open intestine.

For a satisfactorily functioning artificial anus the flap must remain supple and well nourished. Therefore in Imbert's modification of Lambret's method the pedicle of the flap is internal and below. The inguinal incision through which the intestine is mobilized and divided serves as one side of the flap and hence will not cause anæmia of the pedicle.

The operative technique consists in the mobilization and aseptic division of the pelvic colon through a 10-cm. iliac incision parallel with the inguinal fold. The lower gut stump is abandoned. The blood supply of the upper stump is mobilized for an extent of from 12 to 15 cm. A quadrilateral flap of skin and subcutaneous tissue with sides measuring 15 and 12 cm. respectively is cut by extending the first incision outward 5 to 7 cm., then a short distance perpendicularly upward, and finally inward for 12 cm. parallel with, and above, the first incision. Thus the pedicle is on the inner side below. With the index finger inserted in the abdomen an orifice is prepared corresponding to the center of the hinge, but 2 cm. outside and at this point. The upper end of the colon is exteriorized. The first abdominal incision is sutured by layers. The seromuscular coats of the intestine are transfixed at several points to prevent retraction of the bowel. The skin opening, which is reduced to a lozenge shape with the long axis vertical, is sutured transversely, and the crown of the exteriorized intestine is attached at several points to the edge of the skin sheath. The opening is closed by pressing the intestine against the plane of the abdominal wall by means of a bandage around the waist.

The author has employed this procedure very successfully in two cases.

WALTER C. BURKET, M.D.

Widowitz, P.: The Treatment of Rectal Prolapse in Children by the Prone Position (Die Behandlung des Mastdarmvorfalles der Kinder mittels passiver Bauchlage). *Muenchen. med. Wchnschr.*, 1923, lxx, 390.

The pelvic floor in infants shows an ontogenetic weakness on account of the absence of the sacral excavation and the fact that the forward rotation of the pelvis has not yet taken place. It is adapted to the static functions of the quadruped but not to the functions of the primate which carries the entire weight of the intestines in the erect position. In the presence of pathologic conditions it may be even less developed. Therefore in cases of rectal prolapse it is advisable, after reposition of the prolapsed bowel

and the application of a spica, to keep the infant as much as possible in the prone position, the position normally assumed by the young of quadrupeds. After from two to three weeks healing will be sufficiently far advanced for the gradual resumption of the supine position.

BRUNNER (Z).

Buie, L. A.: The Importance of Proctoscopic Examination. *Med. Clin. N. Am.*, 1923, vii, 113.

Patients with rectal diseases often present themselves early and are treated without diagnostic examination, the condition thereby being permitted to become advanced before its nature is determined. Cancer of the rectum is frequently discovered during an operation for hæmorrhoids. Examination of the rectum is not difficult, but proper use of the proctoscope requires experience.

There are many types of proctoscopes. Each operator must select the instrument which he finds most suitable. At the Mayo Clinic a modification of the Beach proctoscope is used. Dry cells with a connected rheostat are best to supply the current for the light. An inflating attachment, which is necessary in certain cases, should be employed as infrequently as possible, and then with great care. The Hirschman anoscope is invaluable for the examination of the lower rectum and anus. Local anæsthesia is seldom, if ever, necessary. General anæsthesia should never be used.

The evening before the examination no supper should be allowed, and 2 oz. of castor oil should be administered. The morning of the examination the patient may have a light breakfast, and a cleansing enema should be given until the water comes clear.

The knee-chest position is satisfactory for most work, or the Sims position if the patient is weak. The Haynes proctoscopic table places the patient in an ideal position. A digital examination should always precede proctoscopy and should be done carefully with the finger-cot lubricated with a non-irritating substance. The relative position of the anus and the rectum and the curves of the rectum and the sigmoid should be kept in mind. The proctoscope is passed through the anus first and the obturator then withdrawn. The remainder of the examination is carried out under direct observation.

Care must be taken not to make undue pressure against the mucous membrane at any time. Posteriorly, the metallic edge of the proctoscope may strike the mucous membrane against the sacrum and cut through it. Anteriorly, pressure produces a pull on the mesosigmoid which causes cramping; the patient is then unable to avoid straining down, which makes further proctoscopy impossible. The proctoscope should be carefully directed through the lumen of the bowel and the inflator should be used when it is impossible to proceed in this manner. Too great pressure should be avoided because of the possibility that the interference is due to the pathologic condition rather than an anatomical irregularity.

While it may not be feasible for the general practitioner or general surgeon to become thoroughly

versed in the appearance of all rectal lesions, the appearance of the normal mucous membrane can easily be learned and enough can be made out on proctoscopic examination to rule out a serious disease situated above hæmorrhoids about to be operated on or to warrant referring the patient to a proctologist.

L. A. BUIE, M.D.

Lefebvre, C.: The Surgical Physiology of the Large Intestine (*Physiologie chirurgicale: gros intestin*). *Arch. franco-belges de chir.*, 1923, xxvi, 215.

The surgical indications to be drawn from the physiology of the large intestine are as follows:

1. Every effort should be made to preserve the function of the ileocecal valve. A cæcosigmoidostomy is better than an ileosigmoidostomy.

2. If resection is necessary, anastomosis will be advantageously effected by creating an artificial valve—for example, by Kellogg's method.

3. In operations upon the colon, the surgeon should bear in mind the utility of the proximal colon, which is a veritable stomach, and sacrifice it only if absolutely necessary. In cases of chronic intestinal stasis, a drainage anastomosis should be tried before colectomy is done.

In the author's opinion, a cæcosigmoidostomy answers the requirements best as it preserves the ileocecal valve, drains the colon well, and preserves the digestive function of the proximal colon. Preservation of the distal colon is less important.

W. A. BRENNAN.

LIVER, GALL-BLADDER, PANCREAS, AND SPLEEN

Higgins, C. C.: Observations upon the Phenoltetrachlorophthalein Test for Liver Function. *Ann. Clin. Med.*, 1923, ii, 30.

The most satisfactory method of determining liver function is the phenoltetrachlorophthalein test as modified by McNeil. In this procedure a duodenal tube is introduced after a twelve-hour period of starvation. When the tube is in the duodenum, as evidenced by a steady outflow of bile-stained fluid at the rate of sixty to eighty drops per minute, a solution of 50 mgm. of the dye in 5 c.cm. of sterile water is injected intravenously and the bile flow collected in bottles for two to three hours. The first appearance of the dye is indicated by a pink tinge when a few drops from the dripping tube are allowed to flow into 40 per cent sodium hydroxide.

The time of the first appearance of the dye, of the maximum change of color, and of the disappearance of the dye are recorded.

The liver functioning normally eliminates phenoltetrachlorophthalein in from eighteen to twenty-two minutes; the maximum elimination is reached in approximately eighty minutes and the dye disappears in from one hundred and twenty to one hundred and forty minutes.

In cases of cholecystitis, catarrhal jaundice, cholangitis, and chronic passive congestion of the

liver, the time of the appearance of the dye was between thirty-five and forty minutes, while in cases of gall-duct obstruction it was between seventy and ninety minutes. These results show that when the liver and bile ducts are diseased and when circulatory barriers are present there is definite inability to eliminate the dye normally, the diminution in the total output and the delay in the initial time of output running parallel with the destruction that has occurred in the liver.

The beneficial effect of non-surgical drainage of the biliary tract is evident in most of these cases, especially those with stagnation. Such drainage is followed by an increase in the quantitative elimination of the dye and its earlier initial appearance.

CYRIL J. GLASPEL, M.D.

Specht, O.: Animal Experimentation on the Influence upon the Secretion of Bile of the Administration of Fluids, Preparations of Internal Secretory Glands, and Various Drugs (*Tierexperimentelle Untersuchungen ueber die Beeinflussung der Gallenabsonderung durch Flüssigkeitszufuhr, Praeparate innersekretorischer Druesen, sowie einzelne Medikamente*). *Beitr. z. klin. Chir.*, 1923, cxxviii, 249.

Up to the present time research on this subject has been carried out only by physiologists and internists and many of the reports on the influence of the administration of fluids are contradictory. With regard to the effect of the internal secretory preparations the investigations have dealt only with adrenalin and pituitary extract. Specht's experiments were made on five dogs. A complete biliary fistula was established mainly according to Pawlow's directions but the choledochus was sutured to the skin to form a valve fistula. In most cases the gall-bladder was allowed to remain. The food given the animals during the period of experimentation consisted usually of potatoes and other vegetables and bread. Meat was never given unless for the express purpose of the experiment. Beyond the amount of water contained in their food, the animals received no fluids.

The secretion of bile in the five dogs was about equal when similar food was given and even when there were marked variations in the amount of food. Only the feeding of meat caused an increase in the production of bile. An increase in the intake of fluids, whether milk or physiological salt solution given by mouth, subcutaneously, or intravenously, caused no greater flow of bile than following dry feeding.

Under normal conditions the amount of bile secreted at night was the same as that secreted by day. The amount secreted during different parts of the day varied little, and in this also there was no change following the administration of fluids. Similarly the specific gravity of the bile was practically constant, and in the same animal the amount of solid matter did not vary as the result of any of the experiments mentioned. Further, it was impossible to

establish any relationship between the sodium chloride content of the bile and the amount of salt in the food, and the conclusion was unavoidable that the secretion of bile and excretion of urine are entirely independent of one another.

With reference to preparations of the glands of internal secretion, the effects of thymoglandol, thyreoglandol, extract of the anterior portion of the pituitary, hypophysin, neohormonal, adrenal tablets, adrenalin, and cholin were studied. Thymoglandol caused an occasional slight increase in the bile, adrenalin a marked increase, and extract of the anterior portion of the pituitary a very distinct decrease.

The other substances caused rather marked variations in the amount and concentration of the urine excreted, but showed no influence upon the bile secretion when the animals were given the same diet with or without the administration of fluids.

MARWEDEL (Z).

Judd, E. S., and Lyons, J. H.: The Mortality After Liver and Pancreas Operations. *Ann. Surg.*, 1923, lxxviii, 195.

The authors report a series of operations performed on the liver, pancreas, and biliary passages at the Mayo Clinic during 1922.

There were twenty-two operations for primary disease in the liver with one death. These cases included abscess, carcinoma, cirrhosis, cyst, prolapse, and infectious hepatitis. The one death in this group occurred after exploration in a case of carcinoma of the liver and was due to pneumonia.

There were thirteen operations for unusual conditions of the gall-bladder and ducts, including one acute perforation of the cystic duct and one acute perforation of the gall-bladder. In both of these cases the operation was performed early and the patient recovered. There were two cases of carcinoma of the ampulla of Vater. In one, a preliminary cholecystostomy was performed and three months later, resection of the ampulla. The patient died of hæmorrhage. The other patient with a carcinoma of the ampulla was a man aged 70 years. A choledochostomy was performed and the tube left in. The patient has remained well for more than seven months. There were nine cases of carcinoma of the gall-bladder; in seven, explorations were performed with no deaths, and in two a cholecystectomy was done with one death.

Cholecystectomy was performed forth-five times for acute cholecystitis, without a death, and cholecystostomy twenty-two times with one death. The patient who died had been ill for many weeks and it was thought best to establish drainage only and to remove the gall-bladder and examine the ducts later if there was any further trouble. Death occurred on the fifty-second day, and at autopsy infection of the liver and a common duct stone were found.

There were 890 cholecystectomies for chronic cholecystitis with and without stones, with eleven

deaths. Five deaths were due to peritonitis, three to pneumonia, two to pulmonary embolism, and one to dilatation of the stomach.

In ten cases, cholecystectomy, gastro-enterostomy, and appendectomy were performed at the same time. One of the patients died of peritonitis. In twelve cases, cholecystectomy and repair of a ventral hernia were performed at the same time; one patient died of peritonitis. These two groups illustrate the danger of doing too much at one operation.

The common duct was opened in 150 cases, with four deaths, one due to liver insufficiency, one to peritonitis, and one to pneumonia. It is noteworthy that in these 150 cases there were no deaths from hæmorrhage in spite of the fact that many of the patients were deeply jaundiced at the time they were operated upon. These patients were carefully prepared before operation.

In twelve hepatico-duodenostomies there were three deaths, one due to shock, one from hæmorrhage, and one from hepatic insufficiency. These operations are extremely difficult and frequently must be performed upon patients who are poor surgical risks.

In twenty-four cases operated on for pancreatic disease, including ten cases of carcinoma and eight of cysts, there were two deaths. In one case of carcinoma of the pancreas a cholecystoduodenostomy was performed and the patient died from pneumonia. The other death occurred in a case of acute hæmorrhagic pancreatitis in which a simple exploration had been performed.

A. J. SCHOLL, M.D.

Rohde, C.: The Influence of Cholelithiasis upon the Digestive Tract (Beitraege zu den Wechselwirkungen zwischen Cholelithiasis und Verdauungsapparat). *Klin. Wchnschr.*, 1923, ii, 631.

Two hundred carefully observed cases of cholelithiasis, which were controlled through operation, showed that there are no roentgen-ray findings in gastric or duodenal ulcers which may not be imitated by cholelithiasis. Changes in the position and shape of the stomach and duodenum in 80 per cent and disturbances of motility in 28 per cent were caused by pericholecystic processes. In the gall-stone attacks there was hypermotility of the stomach arising reflexly in the biliary tract and accompanied by a sharply defined peristaltic retraction which ceased as soon as the spasm-producing organ was removed by cholecystectomy. The secretory function of the stomach was diminished or failed in 75 per cent of the cases, and these disturbances occurred largely (85 per cent) in occlusion of the cystic duct or shrinkage of the bladder; they were somewhat less frequent (69 per cent) when the bladder was large and the pylorus patent.

In marked agreement with these results was the fact that removal of the gall-bladder in 87 per cent of the cases resulted in a hypo-acidity if not a hydrochloric-acid deficiency. Therefore this anomaly of secretion must be looked upon as the result of

the actual or functional removal of the gall-bladder as a reservoir. The constantly increased amounts of bile fats and bile alkalies in the intestine reflexly diminish the gastric secretion. The frequency with which inflammations of the gall-bladder involve the stomach and duodenum is dependent upon the common nerve supply and upon the intimate contact of these parts which is increased by adhesions formed in the course of gall-stone disease.

TROMP (Z).

Dangschat, E.: The Effect of Cholelithiasis and Cholecystectomy on the Secretory Function of the Stomach and Duodenum (Der Einfluss der Cholelithiasis und der Cholecystektomie auf die sekretorische Funktion des Magens und Duodenums). *Beitr. z. klin. Chir.*, 1923, cxxviii, 605.

In about two-thirds of the cases of cholelithiasis and cases treated by cholecystectomy there is a decrease or failure of the free hydrochloric acid. In a small percentage, however, there is hyperacidity. The author has observed these disturbances in the acid secretion of the stomach no more frequently in cases with occlusion of the cystic duct than in those in which the cystic duct was patent. Nevertheless, he agrees with Hohlweg and Schmidt that the chief cause of hypofunction of the gastric secretion is the functional or operative exclusion of the gall-bladder. However, the fact that normal or even increased hydrochloric acid values are found in one-third of the cases in spite of functional failure or removal of the gall-bladder indicates that other factors also play a part. Comparative studies on the same patient before and after the removal of the gall-bladder show that as a rule the pre-operative acidity values persist after the operation, and that when achylia develops the lesions are usually irreparable. A change in the acidity is uncommon. The observation that in a very small number of cases there may be a change from an acidity to normal hydrochloric values indicates that sometimes infection may be responsible for the occurrence of achylia in cholelithiasis.

According to Rovsing's theory, which attributes particular importance to the sphincter papillæ, the sphincter remains continent and there is a compensatory widening of the biliary passages in the presence of normal hydrochloric values, but in the presence of achylia there is incontinence of the sphincter and the biliary passages are of normal size. In the author's opinion this theory is incorrect as in the cases reviewed it was impossible to establish any law governing the width of the biliary passages on the basis of the acidity. In animal experiments an achylia can be produced artificially by the removal of the normal gall-bladder. As studies in clinical cases of cholelithiasis and the findings of animal experiments indicate that the functional or operative exclusion of the gall-bladder is of chief importance in this anomaly of secretion, it is possible that cholecystectomy might have a favorable effect upon hyperchlorhydria and its sequelæ.

CREITE (Z).

Papin, F.: Pyloric and Duodenal Stenoses Due to Gall-Stones and Their Surgical Treatment (Les sténoses pyloro-duodénales dues à la lithiase biliaire et leur traitement chirurgical). *J. de méd. de Bordeaux*, 1923, xcv, 75.

The author reports three cases of high intestinal obstruction due to large gall-stones. This condition may result from the passage of the stones into the lumen of the duodenum, compression of the pylorus by a non-adherent gall-bladder containing stones, inflammatory adhesions about the gall-bladder and duodenum, or pressure from hypertrophy of the head of the pancreas.

The surgical treatment of such cases is gastroenterostomy alone, cholecystectomy alone, or the two procedures combined. LOYAL E. DAVIS, M.D.

Papin, F.: Cholecystectomy for Lithiasis; Transverse Section of Three-Fourths of the Circumference of the Common Duct; Suture; Cure (Cholecystectomie pour lithiase; section transversale des trois quarts du cholédoque; suture; guérison). *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 332.

During a very difficult operation for cholelithiasis Papin accidentally cut the common duct transversely for three-fourths of its circumference. Immediate suture was successful, and the patient recovered without severe complications.

In the discussion of this report Gosset emphasized the fact that stones of the common duct often escape detection clinically as they may not produce any typical signs, and that therefore in all operations for cholelithiasis a methodical examination of the bile ducts should be made. He recommended exposure of the cystic, hepatic, and common ducts preceding cholecystectomy to prevent their accidental injury. In a few uncomplicated cases he did a complete suture of the common duct but later returned to drainage.

Hartmann stated that dilatation of the common duct does not always indicate a stone as it may be produced when the gall-bladder is not functioning as a reservoir.

RUDOLPH MARK, M.D.

Gramén, K.: Subsequent Examination of Patients Operated upon for Gall-Stones in the Serafim Hospital in the Period from 1891 to 1912 (Nachuntersuchung der von 1891-1912 im Serafimerlazarett operierten Gallensteinkranken). *Hygiea*, Stockholm, 1923, lxxxv, 356.

During the period from 1891 to 1912 there were 334 operations on 313 patients. The mortality was 15 per cent for the entire period and 10 per cent for the last five years. Recently it has been still further decreased by better judging of the indications.

The patients were re-examined twice, in 1913 and 1922. One hundred and ninety-seven reports were received in 1913, and 121 in 1922. In 1913, twenty-two of the patients were dead, and in 1922, twenty-three more. The patient's condition was good in 68 per cent of the cases, fair in 22 per cent, and poor

in 10 per cent. The results of cholecystectomy were considerably better than those of cholecystostomy. In six of eight cases in which cholecystostomy gave a poor result a cholecystectomy performed later was successful. Ventral hernia occurred in 13 per cent of the cases, being caused possibly by the wide tampons used formerly. PORT (Z).

Seitz, E.: The Care of the Stump After Cholecystectomy (Zur Frage der Stumpfversorgung nach der Cholezystektomie). *Zentralbl. f. Chir.*, 1923, 1, 713.

In performing a cholecystectomy the author severs the serosa by a median incision and enucleates the gall-bladder on both sides. In the hollow between the liver and serosa formed by the suturing of the flaps of serosa he inserts an extraperitoneal drain down to the stump of the cystic duct. He does not claim priority in describing this procedure but calls attention to it because it is not generally used although very practical.

The median incision of the serosa is made in Bier's clinic in all cases in which the serosa is detachable, but as a rule no drainage is used. Generally the peritoneal sac is open at the bottom. The stump of the cystic duct is usually retracted from the funnel-shaped sac on account of the scantiness of the serosa in this area. Any flow of bile which does not reach the exterior will become encapsulated and resorbed if it is small. The feared adhesions are caused by infection and gauze tampons. In the author's opinion there is no such thing as an "ideal" cholecystectomy. HINTZE (Z).

Simon, L., and Schlegel, A.: The End-Results of 236 Cholecystectomies and Eighty-Two Cholechochotomies from the Standpoint of Postoperative Complaints (Endergebnis von 236 Cholezystektomien und 82 Cholechochotomien, ein Beitrag zur Frage der postoperativen Beschwerden). *Beitr. z. klin. Chir.*, 1923, cxxviii, 625.

Of 223 patients subjected to cholecystectomy, the authors were able to re-examine 140. Forty-six of the latter had had a choledochotomy in addition. One hundred and twenty-four (88.6 per cent) are entirely well, and sixteen (11.4 per cent) have more or less discomfort. Of the latter, five were subjected to simple cholecystectomy and eleven to choledochotomy with drainage. The persisting complaints are not dependent upon changes in the gastric juice. Some of them are due to gas colic. There are no indications of pancreatic disease although in twelve patients (eleven of whom survived) inflammation of the pancreas was found at operation.

When the pancreas was affected a choledochostomy was performed, even in the absence of stones or inflammation of the common duct. In four cases the epigastric complaint is evidently due to a pancreatic condition as the stools show a high fat content and the diastase test is positive. In two cases the complaints are due to adhesions. Rupture of the scar occurred in eleven cases (seven median,

three undulating, and one pararectal incision), but only one of the patients complains of discomfort. In two cases the recurrent complaints are to be attributed to overlooked calculi. As discomfort followed simple cholecystectomy in only 5.7 per cent of the cases, but persisted after choledochotomy in 23.9 per cent, the authors have recently sutured the choledochus. In twenty-two cases so treated there was no further complaint. If choledochus suture is impossible, choledochoduodenostomy should be considered. FRANGENHEIM (Z).

Crile, G. W.: Special Points in Gall-Bladder Surgery. *Ann. Surg.*, 1923, lxxviii, 192.

This article is based upon the experience of Crile and his associates in 1,235 operations on the gall-bladder. Their percentage of correct pre-operative diagnoses increased in direct relation to the amount of study devoted to the case by the roentgenologist. In Crile's opinion it is doubtful whether very much diagnostic significance can be attached to the Lyon test.

Cholecystectomy yielded a higher percentage of postoperative symptom-free results than cholecystostomy. Since 1917, 84 per cent of the gall-bladder operations have been cholecystectomies and 16 per cent cholecystostomies. This corresponds approximately to the figures of the Mayo Clinic.

Cholecystostomy bears a lower mortality and is the operation of choice for poor surgical risks. Morphine is contra-indicated in these cases because of its specific depressing effect upon the liver.

Crile still hesitates to close a cholecystectomy wound without drainage. He prefers a high Bevan incision for ample exposure, and adequate packing with gauze to protect the general peritoneal cavity.

In the series of cases studied the mortality of cholecystectomy was 2.5 per cent and that of cholecystostomy 5.4 per cent. These figures make it appear that cholecystectomy is the safer operation, but this is due to the fact that cholecystostomy was performed in the cases that were poor risks.

The choice between cholecystectomy and cholecystostomy should be based on the patient's condition. CYRIL J. GLASPEL, M.D.

Lyon, B. B. V.: The Selection of Cases Which May Be Benefited by Intermittent or Continuous Medical Drainage of the Gall Tract, with a Brief Discussion of Methods. *Internat. J. Surg.*, 1923, xxxvi, 285.

Five years ago Lyon first introduced his method for the more exact diagnosis of disease of the biliary tract. As is well known, it depends on the observation of Meltzer that solutions of magnesium sulphate applied to the duodenal mucosa permit the discharge of bile into the duodenum by relaxing the tonicity of the duodenal wall and Oddi's sphincter.

Lyon found it possible to recover through the duodenal tube fractions of bile which differed in physical, chemical, and microscopic properties. These A, B, and C fractions of bile from the ducts,

the gall-bladder, and the liver can be segregated by careful technique and allow accurate deductions of diagnostic value. The procedure has been termed "non-surgical drainage" of the gall tract.

In intermittent drainage the duodenal tube is passed and left *in situ* for from two to six hours and during this time two or three magnesium sulphate stimulations and one olive oil stimulation are given. As much bile as possible is recovered and the treatment is terminated by duodenal disinfection.

In continuous drainage the tube is allowed to remain in the duodenum for from several days to three weeks, with one stimulation of magnesium sulphate and olive oil daily to secure evacuation of as much bile as possible each day. Intermittent drainage can be carried out in the office, the patient's home, or the hospital.

Non-surgical drainage is indicated in acute or subacute cholecystitis, cholecystodochitis, chronic cholecystitis, quiescent cholelithiasis, pre- or post-operative cholangitis, postoperative biliary fistula, empyema of the gall-bladder in which surgery is contra-indicated, biliary cirrhosis, pernicious anaemia and chlorosis, hæmolytic jaundice, various toxic types of hepatitis, etc.

Continuous drainage is carried out best in the hospital or, if at the patient's home, under the supervision of a trained nurse. It requires from two to four weeks. The author advocates it for the following conditions: catarrhal jaundice, arthritis due to a gall-bladder focus, cholecystitis in typhoid carriers, common-duct stone of the ball-valve type, cholangitis, etc. In many cases other etiological factors demand treatment at the same time. Prior to duodenal lavage, the mouth and respiratory tract must be disinfected. Some patients demand surgical relief after drainage has been carried out.

JOHN W. NUZUM, M.D.

Sherren, J.: Stone in the Common and Hepatic Ducts. *Lancet*, 1923, ccv, 7.

The presence of stones in the common or hepatic duct indicates the lack of proper and efficient treatment of previous gall-bladder disease, i.e., cholecystectomy. No medical treatment is known as yet which will remove the cause or dissolve the gall-stones. Treatment is still too frequently given for gastric lesions when the symptoms are due entirely to cholelithiasis. The calculi form primarily in the gall-bladder, but in the presence of infection and bile stagnation may increase in size and number so as to form a solid chain plugging the common and hepatic ducts. It follows then that stones found in the common duct have formed primarily in the gall sac or were overlooked at cholecystectomy.

A pre-operative diagnosis of common-duct stone is possible only in the presence of typical attacks of colic associated with jaundice and a rise in the temperature. Jaundice is usually present at some time. In the author's series of 113 cases jaundice occurred in seventy-eight, and in thirty-three it was present and severe at the time of operation.

Many stones may be present in the common duct without causing jaundice. In the majority of the author's cases there was a history of abdominal symptoms for years. Most of the patients came to operation between the ages of 45 and 55 years.

The treatment consists in the removal of the stones followed by cholecystectomy to prevent further stone formation. A shrunken gall-bladder and a dilated cystic or common duct with or without a history of jaundice strongly suggest the presence of common-duct calculi. In such cases the author explores the common and hepatic ducts with a probe inserted through the stump of the cystic duct. It is advisable to dilate the ampulla of Vater. In only two cases was it found necessary to open the duodenum to remove an impacted calculus from the ampulla. When it is enlarged by incision, the stump of the cystic duct is closed with a continuous suture of No. 00 hardened catgut. Drainage is advocated when an infectious cholangitis is present or prolonged manipulation is necessary.

In five of the author's cases in which death occurred following choledochotomy, overlooked calculi were found at autopsy. Cases presenting obstructive jaundice with cholangitis are poor risks. For these, Sherren advocates a two-stage operation, the first stage consisting in drainage of the distended gall-bladder or common duct, and the second in cholecystectomy with removal of any calculi present in the ducts. In the 113 cases reviewed there were eleven deaths. Nine of these occurred in cases of obstructive jaundice. None of the jaundiced patients died of hæmorrhage. Three deaths were due to lung complications and the remainder to hepatic insufficiency coming on between ten and eighteen days after operation.

JOHN W. NUZUM, M.D.

Mayo, W. J.: The Surgery of the Hepatic and Common Bile Ducts. *Lancet*, 1923, cciv, 1299.

The common duct is discussed as a whole, from the point where the hepatic duct emerges from the liver to the duodenal papilla, because the pathologic processes with which the surgeon is concerned in this special field must be treated as a whole.

In the period from December 31, 1890, to December 31, 1922, there were 15,587 operations performed on the biliary tract for all conditions, acute, chronic, and malignant, by the eleven surgeons on the general staff of the Mayo Clinic, with an average mortality of 2.9 per cent. Of these operations, 1,920 were performed on the hepatic and common ducts with an average mortality of 7.8 per cent. In the ten years from 1910 to 1920 the average mortality of operations on the great bile duct was 6.8 per cent. In 1921 the mortality of operations on the common and hepatic ducts was 5.6 per cent, in 1922 it had dropped to 2.9 per cent, and in 1922, in 936 cholecystectomies, it was 1.13 per cent.

All patients dying in the hospital following operation were classified without regard to the length of time thereafter or the immediate cause of death, as having died from the operation. While it may

seem somewhat severe to classify as operative deaths those of patients who, when operated on, had chronic nephritis, hepatic insufficiency from biliary cirrhosis, and secondary cardiorenal disturbance, the result of months of cholæmia and duct infection, and those of patients who died in the hospital some weeks after the operation from a cause not connected with it, it is difficult to secure comparable statistics from different hospitals without an arbitrary standard of classification. Perhaps, too, there is a certain stimulation in holding to a high standard of responsibility.

A satisfactory improvement, so far as mortality is concerned, is manifested by these data. Improvement has been greater than would be apparent from a study of mortality alone, because of constantly increasing knowledge and improvement in technique. Because of a better understanding of the conditions, more and more severe cases have been accepted for operation and operations have been carried out successfully which, in earlier days, were not attempted.

Certain fundamental principles which greatly affect the welfare of surgical patients must be evaluated. They concern: (1) the mortality from the operation, (2) the benefit from the operation, and (3) the disability following the operation.

The pride of the operator and his statistical skill in honestly juggling percentages make most astonishing apparent differences in statistics which are nearly identical. For instance, the early transference of the dangerously ill patient to the medical side of the hospital because of a medical complication is helpful from the standpoint of surgical statistics. If operations, rather than cases, are counted, and a number of operations are performed on the same patient, a small series of cases may make a large series of operations. Mortality estimated by cases is high, but estimated by the number of operations, is low, although the number of deaths would be the same. Again, a slight operation which does not cure will be a test in an unfavorable case. If the patient does not react well, the curative procedure with the major operative risk may not, for many reasons, be undertaken and consequently the patient is not given the chance for cure which a primary radical operation would offer.

We study surgical tragedies and endeavor in every way to hold operative mortality at the lowest point, but the mere fact that a patient recovers from an operation is not in itself sufficient. If he does not receive sufficient benefit to warrant the risk to life, the pain and suffering from the operation itself, the expense, and the loss of time, he has just cause for dissatisfaction. On the other hand, if a more radical operation would have resulted in correspondingly greater benefit, an increase in the primary risk might have been justified.

The question of postoperative disability is important. A surgical procedure should be planned so that the patient will receive the greatest possible benefit with the least possible risk and loss of time.

Today industry is on a full-time basis and every day that the patient is unnecessarily disabled is an economic loss. To perform several operations when one would suffice and thus deduce an apparent but not a true reduction in the mortality, to use a type of incision not strictly indicated for the work at hand, or to use unnecessary drainage which will confine the patient to bed longer or leave him with a greater liability to hernia, is unjust. This economic loss is illustrated by a comparison at ten-year intervals of the hospital morbidity following operations on the biliary tract. The methods in use today as compared with those used ten years ago save for each patient operated on in the Clinic ten days of hospital time or thirty-six years of the lifetime of one person.

The incision used in the majority of operations on the biliary passages has been the incision introduced by Bevan in 1898, slightly modified. McArthur's recommendation to leave the posterior aponeurosis, the peritoneum, and the nerves in the lower third of the incision undivided is followed because the posterior aponeurosis, peritoneum, and nerves are sufficiently mobile to be drawn down readily by a retractor.

Secondary operations on the common duct for the removal of stones may be most difficult, especially if the gall-bladder was removed at the first operation, if dense adhesions bind the area in a confused mat, and if a state of hepatitis or biliary cirrhosis makes the liver bleed at a touch.

The importance of removing all stones from the common duct cannot be overestimated. In nearly one-third of the Clinic cases in which death followed operation on the common duct for stone, the post-mortem examination revealed that not all of the stones had been removed. Since postmortem examinations are made on more than 90 per cent of patients who die in the hospital, this checking up has been of very great importance in adding to knowledge, although often most humiliating to the surgeon. Perhaps some of the stones which are supposed to have re-formed in the common duct are left-overs.

Next to gall-stones in the hepatic and common ducts, operative injuries during cholecystectomy are the most common cause for operations on the common duct. The most serious and difficult operations are those which have for their purpose the restoration of a totally interrupted biliary connection between the liver and the intestinal tract. When injury of the common or hepatic duct has been recognized at the time, the injured duct has been successfully repaired in every instance. From the standpoint of ultimate results a study of the operative methods employed in these cases indicates that in any case in which a portion of the duct was accidentally removed and the injury was not discovered and repaired at the time, thus necessitating secondary reconstruction, direct union between the stump of the hepatic duct and the duodenum is the best operation.

Of the causes of death after operation, hæmorrhage, hepatic and renal insufficiency, and infections of the bile ducts are the most common. These conditions are directly related to the existing chronic obstructive jaundice, hepatitis, biliary cirrhosis, dehydration, and chronic undernourishment. In a review of the postmortem records for a five-year period of patients who died following operation on the biliary tract, Walters found that in 58 per cent of the cases with jaundice in which death occurred within the first week after operation there was more or less blood in the abdominal cavity, usually the result of oozing from slight injuries to the liver. Of itself, the hæmorrhage was not sufficient to cause death, but was a contributing factor. In the cases of jaundiced patients in poor condition, unless there is a definite indication, cholecystectomy is not added to the risk of the operation on the common bile duct because of the danger of injury to the liver which adds to the possibility of slow postoperative oozing.

As these patients are dehydrated and usually unable to take much nourishment, an attempt is made before operation to introduce a quantity of water into the system to aid renal elimination. As a rule it is difficult to accomplish this by mouth; it is best done by proctoclysis or subcutaneously.

A third factor of importance in these cases is hepatic insufficiency, which runs parallel with renal insufficiency. In the presence of hepatic insufficiency the blood sugar may appear to be at the normal level when it is not truly so, because of the concentrated state of the blood from dehydration. Therefore, in the presence of hepatic insufficiency, 5 per cent glucose in plain water is given by rectum or 3 per cent in sodium chloride solution is given subcutaneously.

In checking the hæmorrhage, calcium chloride given intravenously has proved effective, and in certain cases blood transfusion is a remedy of remarkable efficiency. Failure of normal blood clotting in the jaundiced patient is a specific indication of deprivation of blood calcium. It remained for Lee and Vincent to give calcium in a 10 per cent aqueous solution intravenously, with striking results. When the administration of calcium fails to reduce the clotting time to normal, blood transfusion will usually cause a temporary reduction sufficient for operation.

The careful pre-operative management of jaundiced patients has greatly reduced the mortality of operations. In two years not a single patient in the Clinic so prepared has bled following operation. During 1922 there were only four deaths (2.6 per cent) in 150 operations on the common duct for stone, infections, explorations, etc.

Moynihan, B.: Secondary Operations upon the Biliary System. *Lancet*, 1923, ccv, 4.

Moynihan states that approximately 20 per cent of the patients with cholelithiasis upon whom he operates have had previous operations for gall-stones. He believes that the majority of gall-stones

are formed primarily in the gall-bladder. The chief factors in stone formation are infection of the bile passages and an increased cholesterol content of the blood. Infection may reach the gall sac from the blood stream, from the liver bile, from the lymphatic plexuses of the appendix, pancreas, etc., from the common duct through the duodenum, or from adjacent viscera. In uncomplicated cases of cholelithiasis the cholesterol content of the blood tends to be high. Sixty per cent of Moynihan's patients have hypercholesterolemia. Secondary operations on the bile tract are necessitated most commonly by stones overlooked at the first operation. Moynihan inserts the first and second finger of the left hand through the foramen of Winslow and carefully palpates the duct between the thumb and fingers along its entire course.

Calculi in the ampulla of Vater are best treated by opening the duodenum and enlarging the ampulla, with or without suture of the duct edges to the duodenal wall, to permit the passage of the stones in the bowel. Moynihan has made it a rule to drain all cases of multiple stones. In common-duct obstruction due to stones there is cholangitis with, frequently, multiple stones and sand in the hepatic ducts. In such cases a rubber catheter is passed through the ampulla into the bowel after the method of McArthur. This produces continuous dilatation and permits the administration of fluids. As much as 12 to 15 pts. of a 5 to 15 per cent glucose solution plus sodium bicarbonate may be given by the drip method and will be well retained. The tube remains in the duct for from ten days to two weeks. It is often advantageous also to irrigate the hepatic duct with salt solution.

Another frequent cause of secondary biliary tract operations is primary injury to the common bile duct during cholecystectomy. The inviolable rule for gall-bladder surgery must be, "See exactly what you are doing, and until you see, do nothing."

Chronic pancreatitis may often lead to duct obstruction necessitating cholecystenterostomy or cholecystectomy.

Operations on deeply jaundiced patients must be preceded by adequate preparation. Two grave dangers are hepatic insufficiency and postoperative hæmorrhage.

JOHN W. NUZUM, M.D.

Lilienthal, H.: Chronic Biliary Fistula; Implantation of the Sinus into the Stomach. *Ann. Surg.*, 1923, lxxvii, 765.

Lilienthal's case was that of a woman on whom a cholecystostomy was done in 1917. For two years after this operation the patient was free from symptoms but then began to have epigastric pain radiating to the back. While she was in the hospital for another condition, an acute attack of suppurative cholecystitis necessitated drainage. Later, numerous stones were removed from the common and the hepatic ducts. Probing into the duodenum was not entirely satisfactory, and as the patient's condition was not very good, it was decided to terminate the

procedure. A closely fitting rubber tube was passed into the hepatic duct and fixed in place by a fine chromic catgut stitch.

As bile continued to drain from the wound for over two months, even after removal of the tube, an operation to close the fistula was done. The fistulous opening was circumcised so that a thin collar of skin was left, and the sinus was freed from adhesions. A gastrotomy was then performed about $2\frac{1}{2}$ in. from the pylorus anteriorly and about one-third of the way from the lesser to the greater curvature, and a straight needle carrying thick silk was plunged into the stomach through the greater curvature and brought out of the gastrotomy opening. The silk was fastened to the fistulous tract near the skin. The fistula with the sinus was drawn into the stomach by traction on the silk and fixed by four or five chromicized catgut sutures passed through the outer coats of the stomach. Further inversion of the anastomosis was then made and maintained by suture. The silk was extracted through its place of entrance. The wound was closed in two layers with rubber dam drainage.

Bile appeared at the wound for a time but this leak was of short duration and the wound then healed promptly. There never was any icterus. The patient was greatly relieved, and two months after the operation was apparently well.

Lilienthal believes that tubes in the common duct are apt to cause necrosis with scarring and lead to the formation of a persistent fistula.

CLAYTON F. ANDREWS, M.D.

Glass, E.: Persistent Pain as a Characteristic Early Symptom in Acute Pancreatitis (Der Dauerschmerz als charakteristisches Frühsymptom bei Pancreatitis acuta). *Deutsche Ztschr. f. Chir.*, 1923, clxxvii, 123.

In acute pancreatitis the symptoms of ileus, perforated gastric and duodenal ulcer, perforative appendicitis, peritonitis of the lesser pelvis, and mesenteric thrombosis are particularly apt to lead to a false diagnosis. This is explained by the fact that the main ganglia of the sympathetic nerve, which supplies all the abdominal viscera, are located in the immediate neighborhood of the pancreas and are irritated by the inflammation. The most important diagnostic sign is the presence of a sensitive transverse zone of resistance in the epigastrium (Koerte) and persistent colicky pain.

The only form of treatment worthy of consideration is early operation for wide exposure of the pancreas without splitting of the capsule and special drainage of the lesser pelvis.

BANGE (Z).

Fisher, A. G. T.: Acute Hæmorrhagic Pancreatitis: A Case Presenting Certain Unusual Features. *Brit. J. Surg.*, 1923, xi, 179.

The occurrence of more than one attack of acute hæmorrhagic pancreatitis in the same patient is rare. The author reports a case in which a second attack occurred ten months after the first.

On May 5, 1922, the patient was operated upon for acute hæmorrhagic pancreatitis presenting the classical symptoms. Dark blood was found in the peritoneal cavity, particularly in the right kidney pouch. The lesser peritoneal sac also was full of blood. The pancreas was swollen and dark purple, and the body of the gland contained extravasated blood. The omentum showed fat necrosis.

On March 6, 1923, the patient was again admitted to the hospital complaining of sharp and stabbing pain in the epigastrium which was continuous but fluctuated. The skin was cold and clammy, the pulse rapid and of poor volume, and the temperature subnormal. Striking features were a peculiar leaden color of the skin and a definite cyanotic tinge of the lips and face. The abdomen was generally distended, but the distention was most marked above the umbilicus. Examination of the chest revealed dullness of both lung bases and moist crepitations.

On section, the abdominal cavity was full of blood, but no obvious areas of fat necrosis could be seen. The large and small bowels were congested, and there was paralytic distention. The mesentery at its root and the lesser sac of the peritoneum were distended with blood clot. The pancreas was greatly enlarged by hæmorrhage. In the peritoneum of the posterior wall of the lesser sac was a ragged opening. The introduction of the forefinger into this opening was followed by a gush of blood. Drainage of the pancreas and lesser sac was followed by recovery.

HOWARD A. MCKNIGHT, M.D.

Petrasczewskaja, G. F.: Chronic Pancreatitis (Zur Frage der chronischen Pankreatitis). *Festschr. zu Prof. Netschajeff's 50-jähr. Dokl. Jubil.*, 1922, ii, 298.

The author reports the cases of four patients who came to operation with severe icterus and colicky pains in the upper part of the abdomen. In two cases syphilis was probably the cause. In one, the condition was preceded by acute gastro-enteritis, and in another by dysentery. The content of diastatic ferment in the blood was markedly diminished. All of the four cases were treated successfully by cholecystogastrostomy. The author is decidedly in favor of this method of diverting the bile.

PETROW (Z).

Deaver, J. B.: A Clinical Study of Pancreatitis. *Ann. Clin. Med.*, 1923, ii, 1.

Deaver points out that little or no attempt is made to diagnose the common, milder lesions of the pancreas. The ability of the pancreas to carry on its work even in the presence of gross lesions renders diagnosis difficult until a very large portion of the gland has been destroyed or other organs have been invaded.

Routine autopsy findings show that chronic pancreatitis is not uncommon. In operations on the upper abdomen the head of the pancreas is frequently found definitely indurated.

Because of the close relation of the pancreas to the biliary ducts and lymphatics and to the lym-

phatics of the other intra-abdominal organs, the question of pathogenesis is important. The symptoms of pancreatitis are usually those associated with the bile passages. Functional tests are of value to obtain suggestive or confirmatory evidence. The diagnosis rests on the history and clinical signs.

The most important preventive of chronic pancreatitis is the early treatment of diseases of the upper abdomen. WILLIAM E. SHACKLETON, M.D.

Bevan, A. D.: Pancreatic Cyst. *Surg. Clin. N. Am.*, 1923, iii, 887.

A man 55 years of age who had had abdominal distress suggesting gastric ulcer for twenty-five years developed an abdominal tumor which completely filled the space from the ensiform to below the umbilicus. His weight decreased by 50 lbs., and the tumor, which appeared cystic, continued to grow. No interference with pancreatic function was noted. The X-ray examination was negative.

Under general anesthesia the abdomen was opened by a long midline incision. A large, thick-walled cyst of pancreatic origin was exposed. The stomach had been pushed up and the large bowel down. Two gallons of fluid were removed. As an attempt to take out the cyst was unsuccessful, it was partially packed with iodoform gauze and two rubber drains were inserted. The wound was closed to the drain and a thick layer of zinc-oxide ointment was spread over the skin to protect it from the pancreatic fluid.

The patient subsequently gained 50 lbs. The tube was left in and the interior of the cyst irrigated with a weak tincture of iodine until it contracted. Then pure tincture of iodine was used every other day. Six months after the operation a small rubber tube was left in for drainage because it is better to drain too long than not long enough. The patient will be put on an anti-diabetic diet in the hope that this will hasten the closure of the cyst.

MARCUS H. HOBART, M.D.

Lindemann, W. J.: Pancreatic Cysts (Ueber Pancreascysten). *Nowy. Chir. Arch.*, 1922, ii, 413.

Pancreatic cysts are among the comparatively rare surgical conditions. Since the first case operated upon in the year 1862 by Le Denta, more than 300 cases have been reported. On the basis of Koerte's classification, the author differentiates (1) true cysts, including (a) retention cysts, (b) hæmorrhagic cysts, and (c) proliferating neoplasms, cystadenomata, cystic epitheliomata, and (2) false cysts, consisting of encapsulated collections of fluid in the bursa omentalis or between the pancreas and the peritoneum.

Etiologically, trauma is the chief factor to be considered. Trypsin is of great diagnostic significance, but the diagnosis is difficult. The treatment is solely surgical. The possibility of radical extirpation is limited. As a rule, the cyst is opened and sutured to the abdominal wall. According to the latest statistics the mortality following the various operations is as follows: opening of the ligated cyst,

4 to 8 per cent; entire removal of the cyst, 18 to 21 per cent; partial removal of the cyst, 44 to 55 per cent.

The author reports the case of a 53-year-old man who had had cardiac disease for the past seventeen years, and for the past ten years had noticed enlargement of his abdomen. Two years before he consulted the author he sustained an injury in an automobile accident, which was followed by severe pain in the abdomen, weakness, loss of consciousness, the vomiting of fresh blood, and the appearance of blood in the stools. Later a large tumor developed in the abdomen with fever. Recovery was slow.

Upon the patient's entrance into the hospital he was suffering with cardiac failure, stenosis and insufficiency of the mitral valve, and stenosis of the aortic valve. In the abdomen, particularly in the left lower quadrant, was a large, elastic, somewhat movable tumor extending beyond the midline. Before operation this was considered to be either an echinococcus cyst of the liver or a cyst of the mesentery with possible involvement of the pancreas. Laparotomy showed it to be a large cyst in the head of the pancreas containing blood pigment and cholesterol crystals. A small portion of the cyst wall was removed and the cyst drained through the abdominal wall. Microscopic examination of the removed portion of the cyst wall showed fibrotic connective tissue with necrotic masses on the inner side.

At the end of two months the patient was discharged with a fistula which secreted a foul-smelling fluid. One and a half years later his general condition was good but the fistula was still present.

This was a case of benign true pancreatic cyst complicated by hæmorrhage. SCHAACH (Z).

Scholz, T., and Pfeiffer, F.: Roentgenologic Diagnosis of Carcinoma of the Tail of the Pancreas. *J. Am. M. Ass.*, 1923, lxxxi, 275.

The clinical picture in cases of carcinoma of the tail of the pancreas is so ill defined that a correct clinical diagnosis is made rarely, if ever.

In the two cases reported by the authors the roentgen-ray findings were so characteristic of gastric malignancy that a definite diagnosis of carcinoma of the stomach appeared justified even though the clinical findings were not very typical of a gastric lesion.

Roentgen-ray examination reveals a permanent, irregular outline defect in the middle portion of the greater curvature of the stomach, which is tender on deep pressure. Such an outline defect, though usually characteristic of a neoplasm of the gastric wall, may sometimes be recognized as due to a carcinoma of the tail of the pancreas if the roentgen findings are interpreted with proper consideration of the clinical aspects of the case. The main differential diagnostic feature in such instances is an obvious lack of agreement between the roentgenological and clinical manifestations, the latter showing a striking lack of direct gastric symptoms.

In the authors' cases the only clinical symptoms were diarrhoea and an unexplained loss of weight.

The diagnosis was confirmed at operation. The classical symptoms of carcinoma did not develop until several months after the operation.

HOWARD A. MCKNIGHT, M.D.

Hitzrot, J. M.: Splenectomy in Hæmorrhagic Purpura. *Ann. Surg.*, 1923, lxxviii, 186.

The hæmorrhagic diatheses are classified into three groups: (1) the secondary purpuras which have a known etiology and occur in febrile diseases, blood diseases, peritonitis, etc.; (2) the anaphylactoid purpuras which have an unknown etiology and occur merely as a part of the reactive syndrome of some anaphylactic agent; and (3) idiopathic purpuras which have an unknown etiology and include the various forms of the hæmorrhagic diatheses which are primary.

The characteristic features of idiopathic purpura are an increased bleeding time, absence of retraction of the blood clot, a marked decrease in the number of blood platelets, a normal clotting time, and a normal red and white cell count.

Frank was the first to make the observation that cases of idiopathic purpura present a constant enlargement of the spleen, and to suggest that the disease is due to some agent which destroys the blood platelets, and that, because of its enlargement, the spleen has some relationship to this platelet destruction.

Kaznelson, in 1916, was the first to treat idiopathic purpura by splenectomy. After the operation the blood platelets rose to normal, the bleeding time diminished, and there was constant improvement. Since then, other cases have been reported in this country and in Europe.

The author reports the case of a girl 8 years old who made a complete recovery following splenectomy when all other therapeutic measures had failed and her life was threatened by repeated hæmorrhages.

He concludes that in idiopathic purpura the removal of the spleen has a definite effect which seems to be related in some way to the number of blood platelets and the change in the bleeding time.

CYRIL J. GLASPEL, M.D.

MISCELLANEOUS

Frik, K.: The Technique of Examination by Pneumoperitoneum (Zur Untersuchungstechnik des Pneumoperitoneum). *Fortschr. a. d. Geb. d. Roentgenstrahlen*, 1923, xxx, 561.

Frik observed a case in which pneumoperitoneum was followed by emphysema of the neck involving the deeper layers between the muscles. He explains this by assuming that, as the result of injury to the peritoneum, the air was forced upward toward the neck through the retroperitoneal tissues and the mediastinum. As such complications cannot be avoided with certainty, he believes pneumoperitoneum should be instituted only on the strictest indications.

KOENIG (Z).

Parker, C. H.: A Report of Three Unusual Abdominal Cases. *Am. J. Roentgenol.*, 1923, x, 605.

The first case was that of a boy of 4 years who had had two attacks of gastric disturbance. At the first attack about two years previously, a mass was discovered in the epigastrium. This mass was still present; it was smooth, firm, freely movable, and the size of a walnut. Roentgenograms showed two abnormal shadows which the opaque media demonstrated were not attached to the stomach or to the small or large bowel. Because of the size of the shadows, their smooth borders, and their lack of fixation, they were interpreted as being due to a mesenteric cyst rather than to glands. At operation, a multilocular cyst of the mesentery of the small bowel was found.

The second case was a case of patent omphalo-mesenteric duct in an infant 3 weeks old. Following the separation of the cord, small amounts of fecal material began to escape from the umbilical stump and a protrusion occurred which resembled everted bowel. No abnormalities were noted when barium and milk were given by mouth. When barium was injected through the umbilical opening, it filled what appeared to be the mid-portion of the small intestine, and in a few hours filled the large bowel. The case never came to operation.

The third case was that of a man aged 52 years who gave a history of constipation, frequent vomiting, and flatulence. At the fluoroscopic examination a sac the size of an egg was discovered behind and on the lesser curvature side of the stomach. At a second examination this sac did not appear until after attempts at palpation. Gastropasm was present at both examinations. A roentgen diagnosis of gastric ulcer with an accessory pocket posterior to the stomach was made. At operation, the stomach and duodenum were found normal but a diverticulum 4 in. long was discovered at the duodenojejunal juncture.

CHARLES H. HEACOCK, M.D.

Babcock, W. W.: Resuscitation in Abdominal Surgery. *Am. J. Obst. & Gynec.*, 1923, vi, 179.

Resuscitation depends upon: (1) the re-establishment of the circulation within seven minutes; (2) the continuance of the tidal air movements in the lungs, without which the restored circulation cannot continue; and (3) the maintenance of the temperature. The procedures used to accomplish these ends must not interfere with one another. The Sylvester and Marshall-Hall methods of artificial respiration have been discarded by the author because they interfere with other measures to restore the circulation.

Babcock's working plan for resuscitation is as follows:

1. The patient is placed on her back with the arms extended and supported at the sides of the head.

2. The anæsthetist supervises the position of the head and neck, watches the pupils and the temporal or carotid pulse, and maintains an unobstructed airway. She pries the jaws apart, pulls the tongue

forward, if necessary, and notes the degree and amplitude of any respiratory movements by watching a wisp of cotton affixed to the patient's nose or by auscultation.

3. Assistant No. 1 immediately gives an intravenous injection in a convenient vein in front of the left elbow, beginning with 200 mils of warm physiological salt or Ringer's solution to which 10 minims of a 1:1,000 solution of adrenalin have been added. As one-half a minim of adrenalin is often ample and 10 minims would violently strain the heart, the injection is instantly stopped by compressing the tube at the first evidence of a return of pulsation. It is then continued from time to time only if necessitated by failure of the pulse. If the heart does not respond during the injection of the first 200 mils of solution, the injection is rapidly continued with successive additions of 15, 20, 30, or more minims of the adrenalin solution until a response is obtained.

4. Assistant No. 2 assists the operator in inducing artificial respiration, first by rhythmic compression of the chest, in and back and down. He faces the patient's head and uses his hands and the inner side of his elbows and forearms. If the compression fails to move the tidal air, he is warned by the anæsthetist, and without further delay immediately passes the patient's head upon the right side, places a piece of gauze over the mouth, compresses the nostrils, and, filling his own lungs to the utmost, produces mouth-to-mouth insufflation, giving time for the air to escape between insufflations and by pressure over the upper abdomen preventing the air from distending the stomach. In children, care is necessary not to overfill the lungs. The use of the pulmotor or similar mechanical appliances in the cases of infants has been responsible for death several days later from rupture of the walls of the alveoli of the lungs.

5. The operator carries one hand well up under the left diaphragm, and with the other hand over the chest, compresses the heart between both hands. From twenty to thirty compressions are made a minute, the heart being well compressed and emptied

and quickly released. The efficiency of the massage is shown in the vessels of the neck. Often there will be no response until a sufficient quantity of solution has been introduced into the veins to carry the adrenalin through the heart into the coronary arteries. Cardiac massage stimulates the organ and relieves over-distention, first emptying the old blood from the heart and then permitting the adrenalin solution to pass to the coronary vessels. With the first cardiac pulsation, the beats usually increase rapidly in speed and as a rule no further efforts at massage are necessary if the respirations are well maintained. If the heart is large or so dilated or situated that effective cardiac massage is impossible, the injection of 500 mils of fluid with 4 mils of strong adrenalin into the veins, thoracic massage, or direct injection of the heart should be used. For trans-thoracic massage, a stab 1 in. long is made through the third left intercostal space, 1 in. to the left of the sternum. The index finger follows the knife through the chest wall, partially circles the left ventricle, and is so hooked as rhythmically to compress the heart against the overlying wall of the chest. To prevent pneumothorax, wet gauze is wrapped around the base of the finger and held over the opening when the finger is withdrawn. When other measures fail, from 3 to 60 minims of strong adrenalin solution may be injected by a fine long needle directly into the cavity of the left ventricle, with care to avoid the internal mammary artery lying 12 mm. lateral to the sternum.

Nurse No. 1 brings a sterile tray (always held in readiness) which carries a small funnel attached to 4 ft. of soft rubber tubing, a suitable connection, and a needle for intravenous injection; a scalpel; a ligature; a thumb forceps; a dropper; a reliable solution of adrenalin; and a hypodermic syringe with a short and long fine needle. She supports the patient's right arm while the needle is being introduced, and aids in the injection.

Nurse No. 2 brings the sterile warm salt solution, fills the funnel, and sees that the air is expelled from the tubing.

EDWARD L. CORNELL, M.D.

GYNECOLOGY

UTERUS

Parsamoff, O.: Intestinal-Uterine Fistulae and Their Treatment (Zur Frage der Darm-Uterus-fisteln und ihrer Behandlung). *Gynaekologija i Akuscherstwo*, 1922, i.

The author reports a case of intestinal-uterine fistula operated upon by himself. The condition followed an induced abortion. Intestinal-uterine fistulae are comparatively rare. It must be assumed that inflammatory and suppurative processes developing in the neighboring organs perforate into the uterus, especially when the uterine tissue has been injured.

Operation should be performed as soon as possible as these fistulae soon lead to general weakness. In the majority of cases the operation should be performed by the abdominal route. It is impossible to indicate any general method of operation as the technique must be adapted to the requirements of the particular case. If closure of the defect in the intestine is impossible, the affected coil must be resected. In some cases the perforative opening may be covered by the omentum. **BLUMENTHAL (Z).**

Degrais: Cancer of the Neck of the Uterus Treated with Radium; Cure Maintained for Twelve Years (Epithéliome du col de l'utérus traité par le radium; guérison maintenue depuis douze ans). *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 225.

The author reports a case of cancer of the neck of the uterus which was of cauliflower-shape and involved the vagina. According to the judgment of three well-known surgeons it was inoperable. Applications of radium were made in three treatments in a period of six months. The technique is not described in detail, but was similar to that generally employed in modern practice. Repeated examinations for twelve years have shown no recurrence.

This good result is ascribed not alone to the type of cancer, but also to the systematic application of the radium which was continued regardless of the improvement following the first treatment.

In the discussion of this case Martel mentioned an analogous case of cancer of the neck of the uterus in which inoperability was revealed by laparotomy and subsequent radium treatment was followed by an apparently complete cure for eleven years.

RUDOLPH MARX, M.D.

Navarro Blasco, F.: Hysterectomy for Fibromyomata Previously Irradiated (Histerectomías por fibromas previamente irradiados). *Arch. de med., cirug. y especial.*, 1923, xi, an. de la Soc. ginec. españ., 73.

The author performed a hysterectomy in three cases of fibromyoma which had been treated by

irradiation. He believes that surgical treatment is clearly indicated in at least 50 per cent of all types of fibroma. Irradiation is not as harmless as many patients and some physicians believe since it may cause various complications and even death. In the majority of cases it is a blind method of therapeutics which sacrifices the uterus and ovaries.

In the three cases reported surgical intervention was necessitated because of the complete failure of the irradiation, and the operation was rendered more difficult than usual by the multiple intestinal adhesions due evidently to the effect of the rays.

W. A. BRENNAN.

ADNEXAL AND PERI-UTERINE CONDITIONS

Kennedy, W. T.: Radiography of Closed Fallopian Tubes. *Am. J. Obst. & Gynec.*, 1923, vi, 12.

Aldridge, A. H.: Insufflation of the Uterus and Fallopian Tubes. *Am. J. Obst. & Gynec.*, 1923, vi, 53.

KENNEDY has been filling the uterus and tubes with a 20 per cent solution of sodium bromide and radiographing that part of the genital tract which received the fluid. The pressure and the quantity which passed into the cavity have been noted. If the ampulla of the tube casts a shadow it must be connected with the uterus by a patent isthmus even though the passage between contains no sodium bromide. If the ampulla of the tube does not appear in the roentgenogram there is an obstruction in the isthmus of the tube or in the cornu of the uterus, or the tube has been removed. Kennedy reports twenty cases with their roentgenograms. He draws the following conclusions:

1. In view of Sampson's work, a roentgenogram should not be made in any case in which there is evidence of bleeding.

2. The degree of flexion of the body of the uterus can be determined if the position of the uterus is known.

3. The internal os can withstand a pressure of 200 mm. Hg. in the cervical canal without allowing the passage of the solution into the uterine cavity.

4. While permitting the sodium bromide solution to pass through their canals, many isthmi can overcome a pressure of 200 mm. Hg. and expel their contents in either direction.

5. Of the tubes examined, 30.8 per cent were occluded at the isthmus and 69.2 per cent occluded at the fimbria. Of the tubes casting a shadow, the isthmi appeared in 61.2 per cent and did not appear in 38.8 per cent.

6. The surgeon is able to determine the following points before opening the abdomen: (1) the length, breadth, position, and direction of the canal of any

tube casting a shadow, (2) the exact site of the occlusion, whether at the fimbria or in the isthmus, (3) whether a tube open at its isthmus and closed at the fimbria is empty and simply clubbed or filled with fluid, (4) whether an operation to overcome the obstruction and thus remove the sterility might be done with some chance of success when at least one isthmus is open, or would be almost useless when both isthmi are closed.

ALDRIDGE reaches the following conclusions on the basis of 600 cases:

1. The Rubin method to determine tubal patency is a simple and safe diagnostic procedure.
2. If the details in the technique are carefully controlled a definite opinion can be formed as to the condition of the tubes in approximately 85 per cent of the cases examined.
3. Patients should not be examined when near a menstrual period or in the presence of acute pelvic inflammatory disease or serious heart disease.
4. Insufflation is indicated in all cases of sterility in which a definite diagnosis of the cause cannot be made by bimanual pelvic examination.
5. Conditions associated with menstruation, uterine displacements, and ovarian and uterine tumors may cause partial or complete tubal obstruction and yet not be apparent on inspection at operation.
6. The method is almost entirely diagnostic. Pregnancy follows insufflation in only a very small percentage of cases (nine cases).
7. Operative procedures which are done to open the tubes or to keep them open in cases in which both tubes have been involved in an inflammatory process are very often unsuccessful.

EDWARD L. CORNELL, M.D.

Donald, A.: The Clinical Aspects of Adenomyomata of the Female Pelvic Organs. *Proc. Roy. Soc. Med., Lond.*, 1923, xvi, Sect. Obst. & Gynec., 82.

Adenomyomatous growths may develop in the uterus, round ligament, tube, ovary, or rectovaginal space. They are frequently associated with tarry cysts of the ovary. The author operated upon sixteen cases in one year. The chief symptoms were dysmenorrhœa, pain or pressure in the rectum, and dyspareunia. Examination usually reveals hard nodules or an irregular swelling in the posterior fornix. Indefinite resistance at one or both sides of the uterus may also be noted. The uterus may be retroposed or its mobility may be greatly limited.

Tarry cysts of one or both ovaries were found associated with the adenomyoma in eleven of the sixteen cases. In twelve cases a panhysterectomy or subtotal hysterectomy was performed, the mass being dissected free from the rectum and the pouch of Douglas. In all of the cases the operation was somewhat difficult. There was one death, that of a patient whose pelvis was very widely infiltrated with the growth. Microscopic evidence of adenomyoma was found in every case except two. In the author's opinion these tumors are not as rare as was formerly believed.

HARRY W. FINK, M.D.

EXTERNAL GENITALIA

O'Connor, V. J.: Primary Carcinoma of the Female Urethra: Report of a Case Treated by Diathermy. *Urol. & Cutan. Rev.*, 1923, xxvii, 475.

Primary carcinoma of the urethra is very rare. The author was able to find only ninety-nine cases reported in the literature. Fifty cases reported as of this type he rejected because the lesion belonged to the group of vulvo-vaginal tumors.

Primary carcinoma of the urethra develops most frequently in the mucosa and is of the squamous-cell type and highly malignant. It is an epithelioma and must not be confused with carcinoma of the vulva and vaginal wall. It extends by way of the lymphatics up the inner side of the pubic ramus and into the inguinal nodes. Usually it is preceded by chronic inflammation or polypus.

Until recently, the treatment has been surgical removal of the urethra together with the cancer-bearing areas, but as a rule this leads to structural mutilation and functional derangement and has not been justified by the end-results. Excision supplemented by radium treatment has been more satisfactory. In the author's case diathermy or massive electrocoagulation was employed, but the growth was too extensive for cure as extensive metastases had occurred. Radium was used as an adjunct to the diathermy. Locally the growth was entirely eradicated without loss of function of the urethra.

HARRY W. FINK, M.D.

MISCELLANEOUS

Haug, E., and Heudorfer, K.: Postoperative Adhesions Following Gynecological Laparotomies (Ueber postoperative Adhäsionen nach gynäkologischen Laparotomien). *Muenchen. med. Wchnschr.*, 1923, lxx, 463.

In the Garré clinic Naegeli found that following abdominal operations adhesions could be demonstrated in 78.1 per cent of the total number of cases and in 91.2 per cent of those subjected to a severe operation. Martius, on the basis of his findings in thirty-three cases of repeated cæsarean section in the Bonn clinic, assumes that adhesions occur least frequently after operations in the pelvic cavity, whereas Loehnberg maintains the opposite view because of the prevailing absence of movement in this cavity.

The authors tabulate the findings with regard to adhesions in 236 cases in which laparotomy was performed for the second time. The first laparotomy was performed elsewhere in 140 cases, and in the Garré clinic in ninety. Of the patients operated upon in the clinic for the first time, 15.7 per cent remained free from postoperative adhesions, and of those first operated upon elsewhere only 10.7 per cent remained free.

The distribution of the adhesions was as follows: abdominal wall, 120 cases (51 per cent); omentum, 128 cases (54.4 per cent); genitalia, 142 cases (60.4

per cent); sigmoid, forty cases (17.4 per cent); parts of intestines other than sigmoid, 107 cases (45.5 per cent). It is an interesting fact that following vaginal operations no adhesions were demonstrable in 33.3 per cent of the cases.

The causes of the formation of adhesions before operation are the same as those of postoperative adhesions, viz., inflammatory processes, mechanical and chemical injury of the peritoneum, and the irritation of an increased flow of blood in the peritoneal cavity. Operation may be followed by infection, failure of peritonization of the ligated stumps, serous defects, drainage, etc. The value of iodides in the prevention of postoperative adhesions is not very great.

Adhesions may undergo resolution spontaneously. Pregnancy may cause their disappearance. According to Payr, they cause complications in only from 10 to 12 per cent of the cases and necessitate re-

operation in only 3.5 per cent. Complaints due to adhesions occurred in 9.6 per cent of the author's cases. The onset may be acute, with adhesion-ileus, or chronic.

For an exact diagnosis a careful pelvic and abdominal examination is necessary. Pneumoperitoneum is of great assistance. The treatment is difficult. Operation must be performed carefully. The use of sodium chloride solution or humanol cannot prevent adhesions. Possibly the early stimulation of peristalsis by enemata, cathartics, and intravenous injections of hypophysin may be of value. The suction massage of Kroh and the magnet treatment of Payr are rejected as being too severe. Diathermy and the external application of heat have a favorable effect. Occasionally, diagnostic pneumoperitoneum is curative. The final resort is laparotomy, but the cases must be carefully selected.

THEODOR (Z).

OBSTETRICS

PREGNANCY AND ITS COMPLICATIONS

Stein, I. F., and Arens, R. A.: Roentgenograms of the Fetal Skeleton as a Positive Sign of Pregnancy. *J. Am. M. Ass.*, 1923, lxxx, 4.

In contradiction to prevailing scepticism regarding the practical value of the roentgen-ray examination of the fetal skeleton, the authors present the following conclusions:

1. The X-ray is the deciding factor in the differential diagnosis between pregnancy and other abdominal enlargements, and in cases of pregnancy will reveal definitely the position and presentation of the fetus.

2. Before quickening, the demonstration of the fetal skeleton is the only positive sign of pregnancy obtainable.

3. By pneumoperitoneum, the gravid uterus can be shown quite typically on the film during the early months of pregnancy.

The earliest roentgenogram of a fetal skeleton was obtained three weeks before quickening, probably between the third and fourth months of the gestation.

The authors caution against the estimation of the size and age of the fetus from the shadow in the film. The unstable position of the fetus and the distances of the parts from the film may lead to erroneous conclusions.

In a case of breech presentation in which the roentgen plate gave apparent evidence of hydrocephalus a normal child was delivered.

From the sixth month to term the results are constantly satisfactory.

The authors suggest the use of the biconcave lens to condense the small, vague fetal shadows.

Their technique is carefully explained and a table for various exposures is given.

C. FISKE JONES, M.D.

Hannah, C. R.: Weight During Pregnancy. *Texas State J. M.*, 1923, xix, 224.

From his study the author concludes that in the cases of women whose weight was near the standard at the beginning of gestation the gain for reproduction should not be more than 12 lbs. Women whose weight increase is over the reproductive gain of 12 lbs. manifest pre-eclamptic symptoms such as headache, œdema, increased blood pressure, etc.

Increased gain aggravates such conditions as heart lesions, hypertension, renal disturbance, epilepsy, and psychoses.

The control of the weight in pregnancy shortens the duration of labor and is an excellent treatment for uterine inertia.

HARRY W. FINK, M.D.

Kosmak, G. W.: Fibroid Tumors Complicating Pregnancy and Their Treatment. *Am. J. Obst. & Gynec.*, 1923, vi, 63.

The presence of a uterine myoma or fibromyoma during pregnancy calls for the most careful observation for evidence of local necrosis. If this is diagnosed from the presence of fever and an increased white-cell count, operation should be considered, either a myomectomy or a hysterectomy. Operation should be considered also when a tumor is situated in the lower uterine segment and may possibly interfere with delivery because of its failure to rise out of the pelvis during the last two weeks before labor or in the early stages of labor. Exploratory operation is always possible, and frequently myomectomy with satisfactory suture of the wound in the uterus may be done without causing abortion if the patient is deeply anesthetized. Even if abortion occurs, the uterus is left for a possible future pregnancy.

If a uterine myoma or fibromyoma undergoes degeneration during the puerperium, as evidenced by pain, fever, continuous lochia, either bright or foul, and sometimes by evidences of peritonitis, an exploratory operation should not be long delayed. It may be possible to enucleate the tumor through the vagina if it presents in the lower uterine segment. If it shows evidences of spontaneous expulsion, this process may be hastened by the administration of ergot at regular intervals.

Myomectomy may be undertaken after the birth of one or more children without fear of rupture of the scar in a subsequent pregnancy, provided the scar does not become infected. The induction of abortion during the early months of pregnancy should not be regarded with favor as infection or trauma may damage the tumor tissue to such a degree that convalescence may be markedly protracted and disturbed. If complications do not develop, it may be better to await viability of the fetus and then do a cæsarean section with or without hysterectomy. In some cases, however, total ablation of the uterus in the early months may be necessary.

EDWARD L. CORNELL, M.D.

McDonald, E.: The Processes of Tubal Pregnancy. *Am. J. Obst. & Gynec.*, 1923, vi, 72.

The following classification of the processes in tubal pregnancy is suggested: (1) intramural extravasation; (2) fimbrial rupture, tubal abortion; and (3) transperitoneal rupture, tubal rupture. It is hoped that this new terminology will prove more descriptive of the pathologic processes. Fimbrial rupture may occur through the ostium or through a break in the tissues at the ostium and outside of the mucosal orifice.

In transperitoneal rupture, tubal rupture, the period of intramural extravasation is slight or absent. Cases in which it is slight are no doubt cases of profuse intraperitoneal hæmorrhage without preliminary symptoms.

In a study of 1,098 case reports it was found that when the mortality of tubal rupture and tubal abortion was given separately the mortality of rupture was 17 per cent and that of tubal abortion was 1.6 per cent. In 6,626 cases in series the total mortality after operation upon all forms of tubal pregnancy was 7.04 per cent. In 2,909 case reports in which the location in the tube was given, it was said to be the outer third or ampullar end of the tube in 75 per cent, the middle third in 15 per cent, and the uterine end in few. This includes only deaths after operation.

The usual course of tubal pregnancy is intramural embedding of the ovum with dissection of the muscular coats of the tube and destruction of the tissue by the invading trophoblast. The first common accident, which precedes the first symptoms of tubal pregnancy, is intramural extravasation of blood. In two-thirds of the cases, fimbrial rupture then follows, and in one-third transperitoneal rupture. Fimbrial rupture often occurs through the dissection of the muscular coats to their juncture with the mucosa at the fimbria, the hæmorrhage discharging at the end of the tube through a break in the tissue. In other cases the tube lumen is destroyed by the invading trophoblast, the mucosa and its boundaries being penetrated and the hæmorrhage passing through the mucosal orifice at the ostium. A tubal hæmatoma frequently forms outside the tube lumen and within the muscular coats of the tube, but in some cases the canal may be destroyed by the invading trophoblast and become incorporated into a hæmatoma. Intramural extravasation usually causes the death of the fetus. Transperitoneal rupture may occur as a first accident without preceding intramural extravasation, and cases of sudden symptoms and severe hæmorrhage may be followed by rupture very soon.

Intramural extravasation is the cause of the first pain in tubal pregnancy—the milder colicky pains which precede the severe pain caused by the passage of blood into the peritoneal cavity.

With the distention which occurs in tubal pregnancy the fimbria of the tube is often retracted or engulfed within the tube on account of the stretching of the mucosa and the inner coat. This explains why the anatomical relations of tubal rupture are often not recognized. EDWARD L. CORNELL, M.D.

LABOR AND ITS COMPLICATIONS

Ottenberg, R.: *The Etiology of Eclampsia*. *J. Am. M. Ass.*, 1923, lxxxi, 295.

The author cites the recent contribution of McQuarrie, the findings of Dienst, and his own earlier observations in support of the assumption that there is some connection between the toxæmia of

pregnancy and blood incompatibilities between the mother and child. Briefly, the etiological factor is the accidental transfusion of incompatible blood between mother and child as the result of a fortuitous opening in the placenta between the two circulations.

In his series of 180 women McQuarrie found that toxæmia occurred sixteen and one-half times more frequently when maternal and fetal blood were incompatible than when they were in the same isoagglutination group. Over 70 per cent of the cases of toxæmia occurred in the group characterized by interagglutination between the fetal and maternal blood.

In 160 cases Dienst injected methylene blue with very slight pressure into the umbilical artery or vein of the still-attached placenta immediately after delivery. In thirty-two of the cases (20 per cent) a considerable amount of the methylene blue appeared in the urine, which Dienst interpreted as indicating a communication between the fetal and maternal circulations. Examination of the blood of 118 of these women showed that in twenty-four it agglutinated or laked the blood of the child. In fifteen of these cases there was no toxæmia and no methylene blue in the urine (perfect placenta). In nine of the twenty-four the urine showed the dye. In seven of the nine eclampsia was present, and in two there was albuminuria.

The same process might occur also in the child if the maternal blood entered the fetal circulation. Of the children of eclamptic mothers 50 per cent die, and the lesions present are essentially the same as those in the mother—general thrombosis.

The author presents experimental and clinical evidence to explain the production of multiple (generalized) hyaline thrombi in the liver and kidneys.

In conclusion, Ottenberg states that in the presence of warning signs of toxæmia, a direct examination of the mother's blood might reveal microscopic clumps of agglutinated red cells or phagocytosis of red cells, and that possibly several unexplained diseases of the newborn, especially jaundice and certain hæmorrhagic diseases, are due to accidental placental transfusion of incompatible blood.

C. FISKE JONES, M.D.

Anspach, B. M., Gillespie, W., Macon, W. D., Bowen, W. S., and Others: *The Treatment of Eclampsia—A Symposium*. *Therap. Gaz.*, 1923, 3 s. xxxix, 457.

In reply to a questionnaire sent out by the editors of the *Therapeutic Gazette*, Anspach stated that in prepartum eclampsia elimination should be obtained before an attempt is made to empty the uterus. The skin should be stimulated by means of a hot vapor bath or a hot pack and fluids forced subcutaneously, intravenously, by enteroclysis, or by gavage when the patient cannot be made to swallow. The use of drugs to promote diaphoresis is contra-indicated.

The bowels should be kept open by repeated purging with a saturated solution of epsom salts or,

if necessary, croton oil or elaterium on the back of the tongue. If purgation is unsuccessful, a high glycerine and salts enema followed by repeated colonic irrigations is indicated.

The activity of the kidneys should be stimulated by giving water. If the water is taken by mouth, large doses of sodium citrate should be administered. Anspach advised against the administration of salt solution. He prefers plain sterile water or, if acidosis is present, a 1 per cent soda solution given intravenously or by enteroclysis. If the blood pressure and pulse are low, digitalis or sparteine may be of value. If the blood pressure is high, caffeine may be given with good results. If the blood pressure is above 180 and the pulse pressure proportionate, venesection is indicated. The amount of blood to be removed depends upon the effect on the blood pressure as well as the pulse pressure. *Veratrum viride* is of value in regulating the pulse.

The convulsions should be controlled by morphine given hypodermically and chloral and bromides given by the bowel. For anaesthesia, gas and oxygen are best.

In regard to the delivery of the patient Anspach stated that if it becomes evident that the efforts at elimination will not be sufficiently successful to warrant further delay, delivery must be effected in the manner which will be most rapid in the individual case and at the same time least dangerous; when, in a primipara, the head is in the pelvis and the cervix is soft and offers no bar to rapid dilatation, labor may be induced by dilatation with the Voorhees bag and terminated by forceps or version as soon as the dilatation is complete. When the cervix is long and rigid and delivery through the natural channel promises to be difficult, abdominal caesarean section should be undertaken at once.

In cases of eclampsia arising during labor, elimination should be increased and completion of the labor hastened by any safe procedure.

In postpartum eclampsia measures to increase elimination should be adopted. This is the more dangerous type.

Accouchement forcé is more dangerous and more difficult for both the mother and the child than caesarean section.

The most valuable drug is morphine.

GILLESPIE advised a much more liberal use of *veratrum viride* or *veratrone*. If there is immediate danger of a convulsion he pushes the intramuscular administration of the drug in 15 to 30 minim doses until sighing respiration and copious bilious vomiting occur and there is a soft compressible pulse. He rarely induces labor, relying on elimination induced by the use of *veratrone* and fluids. Eclampsia during labor he treats in the same way except that he uses chloroform and completes the delivery after the first stage by means of forceps. Postpartum eclampsia is also treated by *veratrum*. He does not believe in accouchement forcé or the routine administration of chloroform, but sometimes uses this drug in the second stage. As he is of the opinion that mor-

phine prevents elimination, he uses *veratrum viride* instead.

MACON'S treatment and opinion coincides with that of Anspach.

BLAND outlined the same treatment as that of Anspach and Macon, except for the use of chloroform for convulsions and *veratrum viride* for high blood pressure.

ALTMAN advised the limiting of morphine to a single dose of $\frac{1}{2}$ gr. and the lowering of the blood pressure with *veratrum viride*. He uses either no anaesthetic or nitrous oxide oxygen and ether.

R. S. CRON, M.D.

Dunn, R. H.: The Report of a Case of Rupture of the Uterus. *Virginia M. Month.*, 1923, 1, 253.

In the case reported spontaneous rupture of the uterus occurred during the last month of a second pregnancy. The patient's first labor was terminated by caesarean section after an attempt at a forceps operation. The puerperium following the section was uneventful.

The first symptom of rupture occurred about three weeks previous to delivery by laparotomy; apparently the extrusion of the fetus was very slow. At the time of operation the findings indicated that the rupture had taken place through the anterior uterine wall at the site of the old caesarean scar. It was interesting to note that the placenta was attached at that area and also along the anterior abdominal wall. The fetus, which weighed 8 lbs., was dead and macerated. Supravaginal hysterectomy was followed by slow but complete recovery.

R. S. CRON, M.D.

PUERPERIUM AND ITS COMPLICATIONS

Voron, Michon, and Sedallian: Vaccinotherapy in Puerperal Infection (Contribution à l'étude de la vaccinothérapie de l'infection puerpérale). *Lyon chir.*, 1923, xx, 227.

The authors have tested vaccine therapy in puerperal infection for a period of two years in the Charité Hospital, Paris. The first tests were made with stock vaccines, but more recently autogenous vaccines have been used.

The experience of these two years has led to the conclusion that vaccinotherapy requires further testing by the employment of larger and more prolonged doses and different routes of introducing the vaccine, such as the cutaneous and intravenous.

Stock vaccines and autogenous vaccines give different results. The stock vaccine is particularly applicable to the acute phase of the infection. It acts by provoking a general reaction, and in certain cases has an influence on the thermal curve. In some cases it does not bring about recovery, and when other treatments fail it also fails. Its favorable effects are limited to cases of slight or medium severity. In adnexitis and inflammation of the connective tissue of the broad ligament, it reduces the pain. It is not without a certain gravity, however,

as the intensity of the general reaction is rather marked.

Autogenous vaccine employed in small doses has no effect during the acute stage of the infection, but when the organism has already reacted, it limits the duration of the febrile period. Perhaps it has a favorable effect even later. In conclusion the author states that it would be interesting to determine whether the development of adnexitis from an old puerperal infection might not be prevented by systematic autogenous vaccine therapy.

W. A. BRENNAN.

NEWBORN

Williamson, A. C.: Placental Iron and Its Relationship to Icterus Neonatorum. *Surg., Gynec. & Obst.*, 1923, xxxvii, 57.

The incidence of jaundice in the newborn as given by different clinics ranges from 50 to 80 per cent. In the author's opinion the condition is due to hæmolysis of fetal and maternal blood in the placenta,

the pigments being transmitted to the fetus. The fetal liver, he believes, plays only a secondary and minor rôle.

He describes a method of determining the iron content of the placenta and states that icterus neonatorum has no relationship to parity, sex, the duration of the pregnancy, the type of the labor, asphyxia, or the temperature.

The curve of red cells and hæmoglobin in cases of jaundice was lower than in cases without jaundice. The number of cases studied was too small to indicate any relationship between weight and jaundice.

The following conclusions are drawn:

1. All newborn infants have bilirubinæmia corresponding to the iron content of the placenta.

2. There is a definite relationship between icterus neonatorum and the placental iron content—the greater the placental iron content the greater the clinical jaundice.

3. Jaundice of the newborn may thus be considered as purely dynamic or hæmolytic in origin.

R. S. CROON, M.D.

GENITO-URINARY SURGERY

ADRENAL, KIDNEY, AND URETER

Saloga: Demonstration of a Patient in Whom One Suprarenal Gland Was Extirpated Because of Suprarenal Arterial Gangrene (Demonstration eines Patienten, dem wegen Gangraena arteriotica suprarenalis die Nebenniere extirpiert wurde). *Verhandl. d. Gesellsch. f. Chir.*, Moscow, 1922.

The left suprarenal gland was extirpated according to the method of Oppel because of the signs of beginning gangrene of the four extremities. The specimen showed hypertrophy of all the layers. Immediately after the operation, the pulsation in the blood vessels, which previously had been entirely absent, reappeared. The pain then ceased and the gangrenous ulcers healed. A month later, however, excruciating pain began again and the pulsations became weaker.

In the discussion, in which Fedoroff, Spisharny, Rosanoff, and Reiss took part, it was emphasized that the theory of hyperadrenalism of the blood following hypertrophy of the suprarenal substance, upon which Oppel's operation is based, has not been proved. In some cases the suprarenal gland is atrophic. The author replied that he did not entirely agree with Oppel, but believed that in severe cases, in which nothing else will help, this operation is justified.

BLUMENTHAL (Z).

Hench, P. S.: Salivary Urea and the Mercury Combining Power of Saliva: A New and Simple Index of Renal Insufficiency. *Med. Clin. N. Am.*, 1923, vii, 123.

There is increasing recognition of the fact that the determination of blood urea gives practically all the information of clinical value desired that might be obtained from estimations of total nitrogen, non-protein nitrogen, uric acid, and creatinin. The estimation of the blood urea by the urease method of Marshall as modified by Van Slyke, although a comparatively simple procedure if certain laboratory facilities are available, is rather complicated and laborious for the use of the general practitioner.

It is known that urea is easily diffusible and therefore is distributed approximately equally in all the tissues of the body. Saliva was found to be a very available and useful indicator of urea retention, and in a previous communication Aldrich and Hench pointed out the intimate association between the concentration of urea nitrogen in the blood and the concentration of the combined urea and ammonia nitrogen in the saliva. They found that nearly all of the ammonia in the saliva comes from urea in the process of its breaking down by oral bacteria in the presence of the alkaline saliva. Therefore the ammonia should be considered part of the urea, and the

combined amount of ammonia nitrogen and urea nitrogen should be considered as comparable with the blood urea nitrogen.

In the saliva of normal persons, from 6 to 13 mgm. of combined urea and ammonia nitrogen for each 100 c.cm. were found. This represents between 13 and 27 mgm. of urea for each 100 c.cm. Further observations have caused the author to consider from 6 to 16 mgm. of combined urea and ammonia nitrogen as the average amount for persons without urea retention, and this combined urea and ammonia nitrogen of the saliva closely approximates that of the urea nitrogen of the blood.

In cases of urea retention, the combined urea and ammonia nitrogen in the saliva always increases with an increase in the blood urea nitrogen.

The advantage of estimations of the salivary urea by the urease method is chiefly the availability of saliva. Blood is not always obtainable, especially in the cases of children and obese persons in whom venipuncture is difficult. The value of salivary urea determinations has become still greater with the finding of a more rapid and more simple method than the urease method. This consists of the estimation of the mercury-combining power of saliva.

In a series of approximately 1,000 determinations on the saliva obtained from approximately 500 persons whose blood-urea content varied from 12 to 325 mgm. for each 100 c.cm., it was noted that the mercury combining power of saliva increased with an increase in the blood urea and salivary urea as determined by the urease method. Therefore the mercury-combining power of saliva may be used as an index of blood-urea concentration.

With two easily obtainable reagents the estimation of the mercury-combining power of saliva may be completed in five minutes. Thus a simple practical method is available whereby an index of the blood urea can be obtained by any practitioner, since it necessitates only the most simple apparatus.

Bichloride of mercury in excess in the presence of saturated sodium carbonate gives a reddish-brown precipitate, a mercuric oxychloride. Not until there is bichloride of mercury in excess is this precipitate obtained. A deepening canary-yellow color is noted before the first brownish-red tinge appears. The saliva has a definite power of combining with varying amounts of bichloride of mercury. The combination is between bichloride and certain nitrogenous salivary constituents, mainly urea. As urea represents by far the greater percentage of the combining nitrogenous substances, and as its avidity for bichloride is much greater than that of the other nitrogenous salivary constituents, the mercury-combining power of saliva is an index of the quantitative presence of urea, and the variations in this combining power

depend almost entirely on the blood-urea concentration. Findings from experiments with standard solutions of urea, uric acid, etc., were in accord with the data obtained from the saliva in a series of normal persons and persons with urea retention.

The mouth is first washed out with half a glass of water and a small piece of paraffin may be used to stimulate salivary flow. Two specimens of about 8 c.cm. each are collected. This collection may be made in a very few minutes, and generally without any inconvenience to the patient. The first or preliminary specimen, which removes food particles or excess of epithelial debris, is discarded or used as a check on the second specimen, which is used for titration. The first and second specimens may show a slight difference in the combining power (usually a very slight increase in the first specimen, 0.1 to 0.3 c.cm. for each 5 c.cm. saliva).

Five cubic centimeters of saliva are measured into a flask by means of a graduated pipette and then titrated with a 5 per cent solution of mercuric chloride. For the latter, as a rule, a graduated 10-c.cm. pipette is sufficient. The addition of bichloride of mercury is continued until one drop of the mixture added to a drop of saturated sodium carbonate on a porcelain plate causes the prompt appearance of a definite reddish-brown tinge. Unless the brown color develops within about three seconds, this should not be considered the end point, and a drop or two more of the bichloride should be added. The result may be expressed in terms of the number of cubic centimeters of bichloride of mercury used to obtain this end point. For the sake of comparative uniformity, however, the results are reported in terms of cubic centimeters of bichloride of mercury for each 100 c.cm. of saliva. This value is called the "salivary urea index."

It is unnecessary to filter the specimens because the epithelial debris has a certain small mercury-combining power which practically compensates for the slight quantitative error in the bulk obtained by its presence. Unfiltered, filtered, and supernatant specimens of the same saliva give practically the same result.

For 100 c.cm. of saliva the combining power in normal persons is between 30 and 50 (that is, 30 to 50 c.cm. of a 5 per cent solution of bichloride of mercury). For 5 c.cm. of saliva it is between 1.5 and 2.5 (that is, 1.5 to 2.5 c.cm. of a 5 per cent solution of bichloride of mercury). The upper limit of this range is generally obtained in the presence of the upper limit of normal blood-urea concentration which was taken as 40 mgm. for each 100 c.cm. of blood. When retention occurs, the mercury combining power rises quantitatively, and at a blood-urea concentration of about 325 mgm. for each 100 c.cm. the mercury combining power is about 270 for each 100 c.cm. of saliva or 13.5 for each 5 c.cm. of saliva.

Cases in hospitals may be followed daily with occasional checks on the blood-urea. The method may be used routinely before blood-urea estimations are made, the inconvenience of unnecessary veni-

punctures being thus avoided. When blood-urea estimations are impossible, it may be employed as an adjunct to urinalysis and the phenolsulphone-phthalein test, since the specimens may be collected at the bedside and analyzed in the physician's office. It may be used also as an office test to detect cases of retention.

P. S. HENCH, M.D.

Joseph, E.: Difficulties in Estimating Surgical Insufficiency of the Kidney (Schwierigkeiten in der Beurteilung chirurgischer Niereninsuffizienz). 47. *Versamml. d. deutsch. Gesellsch. f. Chir.*, 1923.

As a rule, surgical kidney disease is unilateral. In bilateral disease it may be difficult to determine which kidney is most severely affected and whether the patient will be able to withstand operation. Cryoscopic examination shows that the kidney parenchyma is greatly reduced and must not be further reduced by operation. Cases are known, however, in which the kidney was successfully removed in spite of an unfavorable cryoscopic examination of the blood. In other cases fatal uræmia followed a short ethyl-chloride narcosis or X-raying of the carcinomatous bladder.

In bilateral cases Joseph pays less attention to the results of functional tests than to the anatomical findings of bilateral pyelography. The latter he regards as of great importance in cases of bilateral renal calculus, pyonephrosis on one side and severe pyonephritis on the other, and advanced tuberculosis of one side and beginning infection on the other. The pyelogram will show the extent of the destruction. It will not reveal the amyloid on the other side, but this is demonstrated by the high albumin content of the ureteral urine.

In the cases of old persons a good functional test does not always exclude the possibility of post-operative uræmia. This is especially true in cases requiring prostatectomy. If a prostatectomy is undertaken at all in the presence of high blood pressure and advanced arteriosclerosis, it should be done in two stages.

STETTINER (Z).

Mascarenhas, O.: Free Grafting of Omentum in a Case of Periclititis; Nephrectomy for Movable Kidney; Repeated Crises of Anuria Cured by Ureteral Catheterization (Greffes épiploïque libre chez une malade présentant de la périclitite; néphrectomie pour rein mobile; crises d'anurie répétées guéries par le cathétérisme urétéral). *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 212.

The case reported is of interest to the surgeon because the result of a free transplantation of omentum was observed at a second operation performed four years later. It is of interest to the urologist because a series of attacks of anuria were cured by ureteral catheterization.

In the anamnesis severe typhoid fever and tuberculosis of the lungs were mentioned. At the first laparotomy, performed in 1918 because of the symptoms of subacute peritonitis, the ascending and transverse colon were found bound closely together

by strong adhesions due to pericolicitis at their junction. By sharp separation, a large surface of the bowel was denuded. Free grafting of omentum was then done. The operation was followed by several painful crises of anuria. These were cured temporarily by ureteral catheterization. In 1918 the movable and sclerotic right kidney was removed. At another operation, performed in 1921, because of painful intestinal crises and melena alternating with obstinate constipation, the ascending and transverse colon were found entirely normal, the grafted omentum having been apparently replaced by smooth serosa. As in the upper part of the sigmoid an extensive stenosis was found, an iliosigmoidostomy was done. Recovery followed.

Six months later several renal crises accompanied by symptoms of uræmia necessitated renewed ureteral catheterization. The last catheterization was followed by the spontaneous expulsion of three phosphatic stones which repeated X-ray examinations had failed to reveal. RUDOLPH MARK, M.D.

Israel, A.: Studies of the Contractility of the Renal Pelvis and the Ureter (Versuche ueber die Contractilitaet des Nierenbeckens und des Harnleiters). *Ztschr. f. urol. Chir.*, 1923, xii, 328.

The author experimented to determine whether contractions of the smooth muscle of the ureter and kidney pelvis could be demonstrated with the myograph. He made a lever from a 15-cm. straw, placed the fulcrum about 2 cm. from the muscle, and formed an axis by pushing through the straw, at a right angle, a needle pointed at both ends. The other paraphernalia used were those usually employed in myographic determinations.

In cats and dogs in narcosis the kidney was exposed and the ureter and renal pelvis were freed by dissection. The ureter, portions of the pelvis which were freed of mucous membrane, and the calices were then individually excised, stretched, and irrigated with physiological salt solution. On electrical stimulation the excised kidney pelvis showed contractions which were plainly demonstrable myographically. With equal stimulation, however, these did not attain the magnitude of the ureteral contractions. In the isolated calices, contractions could not be demonstrated. GEBELE (Z).

Bloch, A.: Chronic Pyelitis or Infected Hydro-nephrosis? (Chronische Pyelitis oder infizierte Hydro-nephrose?) *Ztschr. f. urol. Chir.*, 1923, xii, 219.

On the basis of eight cases the author concludes that simple pyelitis treatment is without effect in many cases of chronic or recurrent cases of pyelitis and their sequelæ because the primary factor is a mechanical or dynamic obstruction. Such obstruction results from a former pyelitis or peri-ureteritis causing adhesions between the pelvis and the ureter. The treatment should be ureterolysis. Similar adhesions may be formed in acute appendicitis when the inflammation through the lymphatics attacks the right kidney pelvis and ureteral neck. In other

cases the obstruction to the outflow of urine may be congenital, being due to vessel anomalies, congenital enlargement or insufficiency of the ureter, or congenital insufficiency of the bladder musculature. Hydronephrosis due to such causes is detected only after infection. In unilateral cases the treatment is extirpation, but in bilateral cases only a conservative operation can be considered.

The article is supplemented with a bibliography. PFLAUMER (Z).

Eisendrath, D. N.: Tumors of the Kidney. *Surg. Clin. N. Am.*, 1923, iii, 1007.

This article contains a case report, a discussion concerning the best method of approach in operations for renal tumors, and an outline and discussion of the pathological types of tumor found in the kidney and kidney pelvis. The causes of hæmaturia are shown in a drawing.

The author emphasizes the importance of pyelography before a diagnosis of renal tumor is made.

As a hypernephroma may grow into a large vein, Eisendrath prefers to tie the renal vein early in the operation to prevent the entrance of bits of tumor into the vena cava. He recommends that the ordinary lumbar incision be extended forward so that the operator may attack the renal vein by pulling the colon and peritoneum forward toward the midline of the body before removing the kidney.

The article contains many pyelograms, drawings, and photographs. GILBERT J. THOMAS, M.D.

Hood, A. J., and Albert, H.: An Unusual Malignant "Mixed" Tumor (Adenosarcoma) of the Kidney in a Young Child. *California State J. Med.*, 1923, xxi, 281.

The authors report this case of malignant kidney tumor in an infant not only because of the rarity of the case and the paucity of the literature on the subject, but also because the child came under observation before any signs or symptoms of the tumor had developed and hence the rapidity and course of the growth could be observed.

When the right peritoneal cavity was opened through a right rectus incision, the mass was clearly exposed below. Several small metastases were seen in adjacent loops of intestine. A loop of the ileum incorporated in the mass was resected. The mass was easily freed down to the kidney pedicle, which was clamped, and the tumor and kidney were removed *en masse*. Great care was used to control hæmorrhage. The child's condition was too poor to permit proper attention to the raw peritoneal edges. Death occurred on the third day following the operation. There was no autopsy.

The article is summarized as follows:

1. Malignant tumors of the kidney or kidney region are of rather rare occurrence in children.
2. Many of the kidney tumors of childhood are of the "mixed" type.
3. "Mixed" malignant tumors of the kidney always contain sarcomatous elements.

4. Certain "mixed" tumors contain tubular gland in addition to sarcomatous elements, and hence represent adenosarcomata.

5. Adenosarcomata of the kidney or kidney region originate from rests of mesothelial tissue of the type originally designed to form the typical kidney structure.

6. Adenosarcomata and other mixed tumors of the kidney which occur early in life are rapid in growth, cause little pain, and usually terminate fatally. Metastases occur by way of the blood stream.

7. The operative mortality is high. Death frequently occurs soon after the operation. Children who survive the operation usually succumb to recurrence of the tumor.

8. An early diagnosis and prompt operative removal are the only means of prolonging life.

LOUIS GROSS, M.D.

Stevens, W. E.: The Diagnosis and Surgical Treatment of Malignant Tumors of the Kidney. *J. Urol.*, 1923, x, 121.

As primary recovery from a malignant tumor of the kidney depends on early diagnosis and treatment, the presence of even one of the classical symptoms, namely, hæmaturia, pain, and palpable tumor, should be regarded as an indication for a careful and complete examination of the genito-urinary tract. The most important sign of all is renal pelvic deformity as revealed by pyelography. The other three symptoms mentioned may be found in many other renal conditions and in extrarenal conditions. Of 413 cases, only 44 per cent were found to have hæmaturia, pain, and a palpable tumor at the same time, but pelvic deformity was revealed in nearly every instance. Other aids in the diagnosis are an X-ray examination of the gastro-intestinal tract, the presence of neoplastic cells in the urine, and profuse bleeding sometimes following ureteral catheterization.

In the absence of definite metastasis and the presence of severe pain or hæmorrhage and intestinal obstruction the treatment consists of nephrectomy. Radium packs and deep X-ray therapy are worthy of trial.

HENRY W. PLAGGEMEYER, M.D.

Fronstein, R.: Complications of Nephrectomy (Komplikationen bei der Nephrektomie). *Klinischeskaja Med.*, 1922, i, 7.

In addition to describing each complication in detail, the author discusses the measures for combating it. Injury to the peritoneum is a frequent complication. Injury to a loop of intestine leads to a fæcal fistula; therefore in this complication the involved loop of intestine should be resected. Intestinal bleeding following nephrectomy is caused by thrombosis of the veins of the small intestine and is to be combated by the internal administration of ergotin, stypticin, or calcium chlorate. Injuries to the diaphragm are rare. Injuries to the pleura are more common and usually lead to death. In one case of injury to the pleura the author obtained a favorable outcome by immediately suturing the

injured portion. To prevent secondary hæmorrhage from the stump of the renal pedicle he recommends the isolation of the ureter from the blood vessels and its separate ligation. The leaving of an artery clamp in the wound to control such hæmorrhage is not sufficiently dependable for general application and should be done in exceptional instances only.

Severe hæmorrhage may result from the injury of accessory renal vessels at operation. In order to avoid this complication every more or less taut strand encountered in isolating the kidney should be severed only after double ligation. Injuries to the vena cava and the vena renalis have also been reported. According to the literature, these injuries are not always fatal if properly treated. Ligation at the site of injury, and especially double ligation of the vena cava, were the methods which gave the best results. The stump of the ureter should always be ligated with absorbable material.

In some cases a secondary operation is necessitated by a retrograde flow of urine. The function of the remaining kidney must be most carefully investigated in order to prevent postoperative anuria. Antiseptics and chloroform are contra-indicated in nephrectomy. To combat a beginning anuria a decapsulation according to the method of Edebohl should be undertaken. Hæmaturia following nephrectomy the author ascribes to a physiological compensatory hyperæmia.

BLUMENTHAL (Z).

Kehl: Animal Experimentation on Anastomosing the Ureters into the Gall-Bladder in Extirpation of the Bladder (Tierexperimentelle Untersuchung zur Ureterocholecystanastomose als Versorgung der Ureteren bei Ausschaltung der Harnblase). *Beitr. z. klin. Chir.*, 1923, cxxviii, 687.

In order to save the patient both the discomfort and the danger of implanting the ureters into the vagina, the superficial layer of the skin, or the intestine in total extirpation of the bladder, Kehl conceived the idea of implanting them into the gall-bladder. After work on the cadaver had demonstrated the technical possibility of this procedure, and after the injection of preparations had shown that the necessary isolation of the ureters had produced no circulatory disturbances, the operation was performed upon dogs. After a temporary period of well-being, all of the experimental animals passed watery stools, and died in from five to seven days.

Autopsy showed the same picture always, viz., œdema and anæmia of the brain. Microscopic examination showed that spasm of the renal vessels had led to the drying up of the urinary secretion. The small intestine presented distinct congestion of the mucosa. Clinically, the occurrence of nitrogen retention left no doubt as to the development of uræmic coma.

Because of these results Kehl would have discontinued his investigations were it not for the fact that while his studies were under way Dardel in de Quervain's clinic undertook similar experiments. Dardel's animals died of what appeared

to be chronic enteritis and this he hoped to prevent in the future by the adoption of special measures. Dardel came to the conclusion that the implantation of the ureters into the gall-bladder can be carried out in man, particularly in cases of ectopia of the bladder. Kehl contradicts this conclusion on the basis of the results of his own investigations. According to Kehl's experience, the contents of the gall-bladder do not always remain sterile, and the enteritis is a symptom of fatal uræmia caused by the continued absorption of urine from the intestine.

JANNSEN (Z).

Harnagel, E. J.: A Simple Treatment of Certain Lesions of the Intravesical Ureter in the Female. *J. Urol.*, 1923, x, 135.

The considerable mobility of the terminal portion of the ureter, which has long been noted by surgeons in operating upon the urinary bladder and has often rendered ureteral catheterization difficult, can be turned to distinct advantage in the female with a lesion of the intravesical ureter such as a uretero-vesical cyst or a calculus of this portion. The cyst or calculus may be grasped by Young's cystoscopic rongeur and drawn down by axis traction for its destruction or removal at the external urinary meatus. When released, the ureter will drop back into the bladder to its normal position. The principal advantages of this operation are that it is simple and is followed by almost immediate recovery.

HENRY W. FLAGGMEYER, M.D.

BLADDER, URETHRA, AND PENIS

Mann, F. C., and Magoun, J. A. H.: Absorption from the Urinary Bladder. *Am. J. M. Sc.*, 1923, clxvi, 96.

In a series of experiments performed to discover whether bacteria would pass through the various components of the urinary tract, dyestuffs were added to the injection medium to serve as a control.

The authors' experiments were carried out under ether anæsthesia, and the urethra and ureters were eliminated as sources of absorption. Nineteen experiments were performed. In sixteen cases the dye injected into the bladder was detected in the urine draining from the severed catheter. The time elapsing before the appearance of the dye varied from eight minutes to more than one hour; in most instances it was between fifteen and thirty minutes after the injection into the bladder.

These experiments showed that absorption may take place from the bladder even when the mucosa is normal. The total amount absorbed was relatively small.

A. J. SCHOLL, M.D.

Fricke, R. E.: The Value of Diagnostic X-Ray in Neoplasms of the Urinary Bladder. *Therap. Gaz.*, 1923, 3 s. xxxix, 549.

In every case with symptoms or signs suggesting a neoplasm of the bladder an X-ray examination of the pelvis should be made. A roentgenogram of a

case of bladder tumor included in the article shows the tumor very plainly and also an area of bismuth in suspension and an area of urine and air. The author cites a case in which the tumor could not be found with the cystoscope until it had been demonstrated by the X-ray. Therefore X-ray plates made with bismuth emulsion in the bladder may be valuable aids in cystoscopic examination.

BENJAMIN F. ROLLER, M.D.

Bugbee, H. G.: Report of Cases of Malignant Growths of the Bladder Treated by Resection and Radium. *J. Urol.*, 1923, x, 159.

The author reports nineteen cases of malignant disease of the bladder and discusses the various forms of treatment, including fulguration, diathermy, and radium.

As an aid in the diagnosis the effect of fulguration on the papilloma is often of great value. If a papilloma does not respond to fulguration at once, it is probably malignant and the bladder should be opened without delay. When there was doubt in the author's cases as to the nature of the growth removed or of sections taken for diagnosis, the same sections or sections from different parts of the growth were submitted to more than one pathologist. In several instances one pathologist reported "no malignancy," while another reported "carcinoma." According to the author, this means either a different classification of bladder tumors by the pathologists or malignancy in isolated areas of the tumor. Bugbee draws the following conclusions:

1. In cases of extensive carcinoma of the bladder in which metastasis has taken place, effort should be directed toward making the patient as comfortable as possible. Often this may be done best by simple bladder drainage.

2. In extensive carcinoma of the bladder without metastasis, it is possible in some cases to destroy the growth by repeated insertions of radium needles at intervals, free drainage for sloughing and infection, and measures to increase elimination.

3. A circumscribed carcinoma should be removed by resection, if possible. Recurrences after operation are less resistant than the primary growth, sometimes yielding even to fulguration. All cases should be kept under observation following operation in order that recurrences may be detected early.

4. The insertion of radium needles into the bladder wall about the line of resection causes the formation of sloughs. In some cases these remain for four months. This treatment minimizes the chances of local recurrence by destroying stray cancer cells, and involves no risk or discomfort.

5. Malignant papillomata should be removed by resection and the line of resection fortified by the insertion of radium needles.

6. While the cases reported are too recent to warrant definite conclusions, the course of the condition has been decidedly more satisfactory than in cases treated by methods formerly employed.

HERMAN L. KRETSCHMER, M.D.

Brack, E.: *The Genesis and Present-Day Treatment of Strictures of the Urethra* (Zur Genese und zur heutigen Therapie der Harnroehrenstrikturen). *Arch. f. pathol. Anat.*, 1923, cxxli, 372.

The author made a histologic study of twenty-five cases of typical urethral stricture. In twenty-two it was found in the membranous portion, and in these cases seemed to have a particular relationship to the excretory ducts of Cowper's glands. According to Brack, Cowper's glands are frequently involved by inflammation of the urethral mucosa. This is true more often in non-specific infections than in gonorrhœa.

Pericanalicular inflammatory infiltrations are formed in the region of the gland, and under certain circumstances an abscess develops in the gland and the inflammation spreads to the corpora cavernosa, causing thrombus formation or even general sepsis. In many cases cicatricial stricture of the urethra is the cause of so-called "cowperitis." When treated, the stricture may give rise to characteristic fissures in the urethral wall. As a rule these are superficial, but occasionally extend into the corpora cavernosa and lead to a transitory febrile infection or a severe septic condition. MEYER (Z).

Joseph, H.: *Plastic Operations on the Male Urethra* (Zur Frage des Ersatzes von Defekten der männlichen Harnroehre). *Ztschr. f. urol. Chir.*, 1923, xii, 158.

The methods of operating for epispadias and hypospadias may be classified into three groups: (1) those in which the deficiency is bridged by suturing of the trimmed edges; (2) those in which the deficiency is filled by stretching and moving the remaining parts of the urethra; (3) plastic methods in which a new tube is formed by means of a skin flap or by free transplantation.

For extensive defects in the posterior urethra Budde has suggested cutting the flap from the scrotum all around, but leaving it connected subcutaneously with the septum scroti which contains branches of the posterior scrotal artery from the perineal artery. This method was used by the author in a case of extensive injury and shortening of the anterior urethra in which the penis and scrotum were adherent by firm scars. After preparation the 6-cm. defect was bridged by a 5- by 7-cm. flap formed into a tube which hung from the septum scroti like an intestinal loop from its mesentery and was sutured into the urethra. The urine was drained through a suprapubic fistula. The new urethra functioned well and the result was permanent. Shrinkage did not occur. VON TAPPEINER (Z).

Forster, N. K.: *Epithelioma of the Penis Following Phagedenic Chancroidal Infection*. *Urol. & Cutan. Rev.*, 1923, xxvii, 488.

The author reports a case of carcinoma of the penis developing in the site of an unusually stubborn chancroid which had been under observation at intervals over a period of several months. Mi-

croscopic studies of sections from the ulcer taken when the patient was first seen and again in the fourth month showed no evidence of malignancy. In the eighth month, however, malignancy was clearly apparent and necessitated amputation of the penis and diversion of the urinary stream by perineal drainage. Eight months after the operation there was no evidence of recurrence.

The case is cited to show the importance of keeping in mind the possibility of malignant changes in phagedenic chancroids. HENRY L. SANFORD, M.D.

GENITAL ORGANS

Swan, R. H. J.: *The Incidence of Malignant Disease in the Apparently Benign Enlargement of the Prostate*. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Urol., 71.

In the cases reviewed, digital examination of the prostate gland revealed only a soft, elastic, movable enlargement, and the symptoms were those presented by the ordinary benign hypertrophy. In three cases operation was followed by carcinomatous infiltration in the lateral lymphatic space. This, however, did not interfere with micturition.

In Swan's opinion, malignancy occurs in apparently benign hypertrophy of the prostate more frequently than is generally believed, and therefore every gland removed at operation should be subjected to a close microscopic examination before a diagnosis of entirely benign enlargement is made.

HERMAN L. KRETSCHMER, M.D.

Judd, E. S.: *On the Surgical Treatment of Diseases of the Prostate Gland*. *Am. J. Surg.*, 1923, xxxvii, 200.

Benign changes in the prostate are serious just so far as they interfere with the function of the kidneys. Inflammation arising in the prostate in association with urethral infection usually subsides gradually as in other tissues; in certain cases, however, it goes on to suppuration and abscess formation, necessitating surgical relief. Prostatic inflammation usually occurs in young men or men of middle age, at a time of life when the prostate is functionally active. In the cases of younger patients conservatism should be practiced. In men past middle age operation is usually advisable.

The trouble following benign enlargement of the prostate depends on the amount of interference with the function of the bladder and urethra. Benign enlargement develops in the gland like a new growth. The tissues are compressed by the growth and form a capsule from which the adenomatous hypertrophy can be readily enucleated. If prostatectomy is performed in the early stages of the enlargement there should be no mortality and only a low morbidity. Difficulty arises from the impairment of important functions as a result of long-standing obstruction.

Cancer of the prostate in most cases arises in the posterior lobe, that portion of the prostate which is

generally not removed in a suprapubic prostatectomy. The best results are obtained when the prostatectomy is followed by radium treatment.

At the Mayo Clinic prostatectomy is performed in the same way as abdominal operations, every step being visualized. Exposed tissues can be packed off and hæmorrhage can be controlled by sutures.

Sacral nerve block gives the most satisfactory anaesthesia for prostatectomy and practically never causes postoperative complications. It is simply and easily induced and gives an anaesthesia of an intensity and duration sufficient not only for the removal of the prostate but also for resection of the bladder for other conditions if this should be necessary. It must be supplemented by suprapubic infiltration. The injection of novocaine into the region of the sacral nerves should be done slowly because slow absorption of the solution tends to minimize the possibility of transient toxic effects.

A. J. SCHOLL, M.D.

White, H. P. W.: The Closure of the Suprapubic Urinary Fistula Following Suprapubic Prostatectomy: Observations on Sixty-Eight Cases.
Brit. J. Surg., 1923, xi, 173.

In the cases reviewed the bladder wound was closed around a Freyer tube, and occasionally a small drain was inserted in the prevesical space. The tube was left in place for three or four days and then replaced by a smaller one. The urine drained into absorbent dressings held in place by a many-tailed bandage and changed every four hours. If a prostatic packing was used it was removed on the third day. The bladder and the prostatic cavity were irrigated suprapubically and by Janet's method daily. The suprapubic drain and the sutures were removed on the tenth day, and a large steel sound was passed per urethram. In an uncomplicated case the patient was sitting up out of bed during the third week. An indwelling catheter was used, when indicated, and the patient discharged from the hospital when the fistula had closed.

In relation to the employment of an indwelling catheter the cases are divided into groups as follows:

Group 1. Cases in which the fistulæ were closed by the twenty-eighth day without the use of an indwelling catheter.

Group 2. Cases showing signs of delay in the closure of fistulæ: (a) treated with an indwelling catheter; (b) indwelling catheter contra-indicated for the time being and closure occurring later spontaneously or following delayed use of the catheter.

Group 1 contained 38 per cent of the cases; closure occurred in an average of twenty days. About 41 per cent of the cases fell under Group 2a, an indwelling catheter being used for three days during the fourth week of convalescence. Of this group, 67 per cent had closure before the twenty-eighth day. Group 2b contained 20 per cent of the total number of cases. In 61 per cent of these, closure occurred

without the use of the inlying catheter, the average time being thirty-seven days. In 38 per cent closure was delayed until a catheter could be borne with safety, the average time being thirty-four days.

The conditions preventing the use of the inlying catheter were acute epididymitis, pyelonephritis and slough, or phosphatic deposit on the wound surfaces. The epididymitis usually occurs in the first week of convalescence and therefore is not necessarily a contra-indication to the use of the catheter in the fourth week of convalescence. When the catheter was tried in the presence of a pyelonephritis it increased rather than diminished the signs of infection. Phosphatic deposit on the wound surface occurred early and began to slough off about the end of the third week; a catheter was of no value until the granulations were free from slough, and these cases were prone to develop epididymitis and pyelonephritis.

The attempt was always made to obtain undelayed closure without the use of the inlying catheter, but often, when fistulæ persisted, closure was established at once by the proper use of the catheter. The catheter also caused the re-establishment of micturition when this was delayed. The catheter is to be avoided, if possible, because it is a foreign body in the granulating prostatic bed. The urethritis it sets up appears to be proportional to the time it remains in the urethra. As the discharge is serous until about the third day, the catheter was removed at the end of the third day. The maximum benefits are to be obtained when the catheter is not used too soon; in case of doubt as to the time it should be employed a delay of a day or two is advisable. If the fistula is in danger of becoming epithelialized it may be curetted and the edges approximated with adhesive tape.

Before final closure of the fistula is accomplished with the indwelling catheter the wound surface should be free from slough and phosphatic deposit and micturition established. Under such circumstances the wound should remain dry for an hour or longer at a time. If spontaneous closure has not occurred after several days of this condition the catheter should be employed. In the cases reviewed, the fistulæ most difficult to close occurred when the first of a two-stage prostatectomy had been done months before the secondary operation, and when the re-establishment of micturition did not occur until after the use of the indwelling catheter. Large catheters of gum-elastic were used.

The operative procedures included the Freyer, the Thomson-Walker, and the two-stage prostatectomy. The first two methods were used in 81 per cent of the cases and were followed by healing in twenty-six days. A two-stage prostatectomy was done in 19 per cent, and followed by healing in thirty days. The more slowly healing cases were by no means all in the last group. In two cases the first stage had been done eight months prior to the prostatectomy and closure required eight and nine weeks.

As a rule micturition did not become re-established for several days after the removal of the suprapubic drain. Usually this occurred the tenth day. In the series as a whole the onset of micturition was the nineteenth day. In 14 per cent it was delayed until an inlying catheter was used. In about 90 per cent of the cases in which it was delayed to the end of the fourth week there had been symptoms of enlargement of the prostate for several years or marked chronic retention of recent origin, this suggesting that the trouble was due to loss of tone of the bladder musculature.

In some of the earlier cases of this series the suprapubic drain was removed on the seventh day, but in these cases closure required twenty-eight days as against twenty-one days for closure when the drainage was stopped on the tenth day. It is an advantage to continue the drainage until the granulations in the prostatic cavity are well formed.

Secondary hæmorrhage appeared in about 6 per cent of the cases. It occurred in poor surgical risks, between the eleventh and twentieth days, and in no case was severe enough to cause anxiety. In treating this complication it is important to remove all the clot and wash out the bladder well. Hæmostatic serum and morphia were valuable aids.

Ten per cent of the cases were cases of malignancy. In six of the seven cases closure was effected in twenty-one days. The seventh patient was discharged with a permanent suprapubic drain. Five of the six returned to the hospital within a few months with the fistulæ re-opened.

The main points brought out in the article are summarized as follows:

1. Too early removal of the suprapubic drain, by diminishing the drainage too soon, tends to delay the convalescence.
2. Rapid closure of the fistula is always desirable.
3. Closure of the suprapubic fistula without an inlying catheter should be the aim in all cases. This was accomplished in about 52 per cent of those reviewed, and in 38 per cent by the twenty-eighth day of convalescence.
4. The indwelling catheter is necessary in a large percentage of cases to prevent undue prolongation of the convalescence. It was employed in about 48 per cent of those reviewed.
5. The indwelling catheter does not help the fistula to close if it is used too soon; if left in too long, it increases the sepsis. No complication arose from its use for three successive days in any case in the series reviewed.
6. In a considerable majority (66 per cent), the fistulæ were closed, without or with the aid of an indwelling catheter, by the end of the fourth week.
7. In the remaining cases the chief causes of delay in closure were complications preventing the use of an indwelling catheter, such as acute epididymitis and pyelonephritis; delayed onset of spontaneous micturition (most common in cases of previous chronic retention); long-standing suprapubic fistulæ in cases of two-stage prostatectomy; and a shelf

of mucous membrane between the bladder and the prostatic cavity in certain cases treated by the Freyer type of prostatectomy.

8. Secondary hæmorrhage is not, as a rule, a serious complication, and can be readily controlled without operative interference.

9. The fistulæ in malignant cases may close very readily following suprapubic prostatectomy, but tend to re-open within a few months.

C. D. HOLMES, M.D.

Kidd, F.: Vasostomy for Seminal Vesiculitis, with a Description of a New and Improved Technique for the Operation. *Lancet*, 1923, ccv, 213.

In cases of chronic relapsing seminal vesiculitis in which massage and irrigations are of no avail, vasostomy is the operation of choice. Belfield's method is adequate for a single injection, but as most of these cases require repeated injections of colloidal silver for cure, the author found it necessary to devise a modification of this procedure. The technique he employs is as follows:

Under general or local anæsthesia, an incision 1 in. long is made over the vas and the vas is freed and brought out of the wound. A special cannula needle is then passed upward into it and the skin closed between the two ends of the loop in the vas. The cannula is sutured to the skin. At this time 30 c.cm. of colloidal silver are injected, and two days later another 10 c.cm. This may be repeated several times. After the last injection the needle is removed and the vas dropped down into the depths of the wound. The treatment described failed in only four of twenty-five consecutive cases.

OSCAR E. NADEAU, M.D.

MISCELLANEOUS

Thomas, G. J.: Some Things the General Practitioner Should Know About Urology. *J. Lancet*, 1923, xliii, 322.

During the last fifteen years stricture of the urethra has become less frequent. Dilatation with guides and sounds will usually give relief. Surgery, if indicated, consists of external urethrotomy in the posterior urethra and internal urethrotomy in the anterior urethra. Strictures are never cured, whatever the treatment.

In cases of hypertrophy of the prostate pre-operative treatment is necessary. The reason for relieving the patient of residual urine and the methods by which this may be done should be known by the general practitioner.

Other obstructions at the bladder neck and lesions of the spinal cord may simulate prostatic hypertrophy. All patients with prostatic symptoms should be given a cystoscopic examination in order that prostatic enlargement may be differentiated.

When difficulty is experienced in the passage of a urethral catheter a double-curve silver catheter will pass more easily and cause less damage than a soft rubber or silk-web catheter.

When suprapubic bladder drainage is necessary, the incision should be made large enough so that the peritoneum may be pushed out of the way.

Cancer of the prostate may be present and may metastasize without causing prostatic enlargement or urinary difficulty.

One-third of all prostatic cancers have formed metastases when first seen.

The treatment of cancer of the prostate consists of radium radiation and surgery.

Hæmaturia should be investigated as soon as it is noticed. Even if the bleeding stops, a complete urological examination should be made, as frequently lesions of the urinary tract do not bleed for periods of several months.

As cystitis does not occur as a primary infection, the urinary tract should always be examined before treatment for cystitis is begun.

The pyelitis of pregnancy is an acute exacerbation of an already present chronic pyelonephritis. Foci of infection are easily found. Before going to term, pregnant women should have all infected teeth and other possible foci of infection removed.

Chronic pyelonephritis may be symptomless at times. Frequently the urine is normal. A cold or other acute infection will cause an acute attack with the usual symptoms.

Renal stones may be symptomless. In addition to surgery, the treatment consists of the removal of foci of infection and pelvic lavage.

In every case of pelvic or abdominal pain ureteral stone should be thought of as a possible cause. Surgery is rarely necessary to remove ureteral stones. Manipulation should always be tried before operation is advised. Twenty per cent of ureteral stones on the right side are wrongly diagnosed.

Bladder stone may be symptomless. Litholapaxy should be done if the stone is not too large.

Tumor of the renal area or upper abdomen can be differentiated only by means of the cystoscope, the ureteral catheter, and the pyelo-ureterogram.

LOUIS GROSS, M.D.

Hill, J. H., and Colston, J. A. C.: A Note on the Bacteriostatic Action of Urine After the Intravenous Administration of Mercurochrome to Normal Rabbits. *Bull. Johns Hopkins Hosp., Balt.*, 1923, xxxiv, 220.

Preliminary tests before the administration of the drug included the determination of the body weight, a phenolsulphonaphthalein test of excretion, and examination of the urine to exclude the presence of casts or albumin, and of the fæces to exclude diarrhoea. A freshly prepared 1 per cent solution of mercurochrome was then injected into the marginal ear vein. Controls on the identification of colonies obtained were made in every experiment. In this way it was possible to determine the number of organisms present at the time of inoculation and at the end of the period of exposure. The action of normal urine having been determined before the injection of the drug, it was possible to estimate the

effect of the drug upon it. In cases in which the normal urine was bacteriostatic, an increase in inhibition after the injection of the drug could be shown. As inhibition was regularly noted after the injection, other factors remaining the same, the authors feel justified in attributing such action to the drug or its derivatives. The hydrogen-ion concentration of the urine was determined in every case in which a sufficiently large specimen was obtained; no marked or regular variation was found after injection.

The article contains several tables showing the inhibitive action of urine following the intravenous injection of 1, 2.5, 5, and 10 mg./kg. of mercurochrome. In two cases bactericidal urine was obtained, in one after a single injection of 1 mg./kg., and in the other after a single injection of 5 mg./kg.

In conclusion the authors state that the clinical trial of moderate intravenous doses of mercurochrome in bacillus coli infections of the urinary tract is justified from the point of view of bacteriostatic action.

C. RUTHERFORD O'CROWLEY, M.D.

Magoun, J. A. H., Jr.: Absorption from the Urinary Tract. *J. Urol.*, 1923, x, 67.

In a series of experiments carried out by the author it was found that certain dyes and bacteria were absorbed from the normal kidney, ureters, and urethra. In a large series of experiments performed previously with regard to the absorption of various dyes and the bacillus prodigiosus from the bladder, it was found that the dyes were absorbed to a slight extent, but that there was no absorption of bacteria.

The various portions of the urinary tract differ greatly in their absorptive powers. The kidney absorbs dyes and bacteria to a marked extent. The ureter and urethra absorb dyes readily but bacteria less readily. The bladder, on the other hand, absorbs a very small amount of dye and no bacteria.

In cases of pyelitis, the clinical phenomena of chills and fever may be due to the absorption of urine and bacterial toxins. Reactions following cystoscopy occur much more often in males than in females, possibly because of the absorption of bacteria through the prostatic urethra.

No attempt was made to study absorption under pathologic conditions, and the path by which absorption takes place is not discussed. It may be assumed that absorption occurs through the blood and lymphatics, especially the former.

The author concludes that the kidney has the greatest absorptive power, the urethra the second greatest, and the ureter the third.

Bacteria could not be recovered from the blood stream or various organs after their injection into the normal or the acutely inflamed bladder.

Experimentally and clinically, bacteria may pass from the pelvis of the kidney into the blood.

In certain cases the kidney, once infected, may act as a focus for a secondary bacteræmia.

A. J. SCHOLL, M.D.

SURGERY OF THE BONES, JOINTS, MUSCLES, TENDONS

CONDITIONS, OF THE BONES, JOINTS, MUSCLES, TENDONS, ETC.

Katzenstein, P. R.: The Conflicting Properties of Periosteum and Bone Medulla in the Formation of Bone (Las propiedades opuestas del periostio y de la médula ósea para la constitución del hueso). *Prog. de la clin.*, Madrid, 1923, xxv, 410.

In experiments on dogs Katzenstein found that the microscopic picture was the same when periosteum was transplanted to bone medulla and bone medulla was transplanted to the deep surface of periosteum. In both cases there was absolute inhibition of the capacity for bone regeneration. He draws the following conclusions:

1. The periosteum and the bone medulla are the tissues that form and regenerate bone. It must be assumed that their activities are very different because, if they were analogous, the combination of both tissues would result in the sum of their effects, whereas both the introduction of periosteum into the bone medulla and the transplantation of bone medulla to the deep surface of periosteum impedes the union of fractures and may give rise to pseudarthrosis.

2. These findings explain the formation of pseudarthroses in fractures. When there is considerable disruption of the periosteum in a comminuted fracture it is not surprising that a pseudarthrosis is produced or union of the fracture is delayed as we now know that, for their full activity, the periosteum and medulla must be kept separated by bone.

3. In operating on a pseudarthrosis care should be taken to extirpate the zone of cartilage between the two extremities of the bone and to see that no medulla is mixed with periosteum and no periosteum is mixed with bone medulla.

4. In the repair of a bone defect by the transplantation of living bone care must be taken that the living bone covered by its periosteum is applied in such a way that its periosteum will not come into contact with the medulla of the extremities of the bone to be repaired.

W. A. BRENNAN.

Ochsner, A. J.: Osteomyelitis. *J.-Lancet*, 1923, xliii, 315.

In acute osteomyelitis early diagnosis and immediate treatment are of great importance because, on account of the rich vascularity of bone, the disease invades very rapidly. Negative X-ray findings do not contra-indicate operation. Positive X-ray findings are present only after the disease has caused considerable destruction. Drainage should be instituted, a wet dressing applied, and the affected part immobilized.

If the process is allowed to continue, or if the incision is not sufficiently extensive, the process may burrow into the joint. The most common invader is the staphylococcus; less frequently the pneumococcus, colon bacillus, typhoid bacillus, and streptococcus are found. The incidence of the condition is three times as high in boys as in girls. Of the 151 cases at the Augustana Hospital, Chicago, the femur was involved in thirty-nine, the tibia in thirty-one, the humerus in nine, the fibula in seven, and the radius and ulna in two each.

Causative conditions are the exanthemata, typhoid fever, pneumonia, pleurisy, tonsillitis, abscesses of the teeth, trauma, exposure, exhaustion, and furunculosis.

In chronic osteomyelitis the sequestrum should not be removed until an involucrum has formed. When a deep hole remains it may be filled in by sewing the surrounding skin and subcutaneous tissue into the bottom of the trough.

RUDOLPH S. REICH, M.D.

Joll, C. A.: Metastatic Tumors of Bone. *Brit. J. Surg.*, 1923, xi, 38.

Secondary tumors of bone must arise by: (1) direct extension from surrounding tissue, (2) extension through the lymph channels, or (3) extension through the blood stream. As the first method of direct extension is not strictly a metastasis, it is not considered here.

In order to make the theory of lymphatic extension acceptable, it must be shown that the lymph channels extend into the bone marrow. This has not been demonstrated. They have been traced into the compact bone, but are stopped by the endosteum.

The blood stream as the medium of metastasis was first studied by von Recklinghausen who concluded that secondary tumors in bone arose from malignant emboli lodged in the marrow capillaries. It has been shown by several pathologists that cellules from a malignant tumor can usually enter the blood stream through the vasa vasorum. There seems to be conclusive evidence also that metastases nearly always begin in the cellular red marrow. The infrequency of metastases in the distal limb bones is explained, not by their greater distance from the primary growth, but by the fact that they contain very little red marrow.

On searching 1,144 autopsy records for bone metastases, the author found fifty-three cases. The primary growth was carcinoma of the breast in thirty-four, carcinoma of the uterus, thyroid, and oesophagus in two each, and carcinoma of various other organs in one each. The bone metastases occurred in the vertebræ in 21.6 per cent, the ribs in

20.4 per cent, the sternum 14.7 per cent, the femur in 14.7 per cent, the skull in 10.2 per cent, and in six other sites in from 7.0 to 1 per cent. Other observers have found the skull the most common site. Ewing places the sternum, ribs, and femur before the skull and vertebrae in order of frequency of involvement.

A case of metastasis in the sternum showed the microscopic structure of scirrhous carcinoma, that of the primary breast tumor. Another in the humerus was of osteoplastic nature, but in spite of this two spontaneous fractures occurred.

With regard to thyroid metastases in bone Kanoky stated that in a fourth of the cases there is no obvious clinical enlargement of the thyroid. As a rule the metastasis is of slow growth. It may be the only one in the body. The thyroid nature of these bone tumors is proved by their content of iodine and colloid. The author tabulates forty-four cases of metastatic thyroid tumors in bone associated with normal thyroid or benign goiter. It is claimed by some pathologists that there may be minute islands of malignancy in the thyroid which escape detection by the ordinary methods of examination. However, after removal of the metastasis there is usually no recurrence. In one case in which the thyroid gland had a small nodule in one lobe a tumor was removed from the clavicle which showed a structure identical with that of normal thyroid. There seems to be no constant relation between the thyroid tumor and its metastasis as to the degree of malignancy.

Tumors of the prostate have the greatest tendency of all primary growths to produce bone metastases. The secondary growths are multiple and may have a wide distribution; in one case the skull, pelvis, ribs, scapula, humerus, and clavicle were involved. While there is a characteristic osteoplastic tendency which, according to Axhausen, is due to the stimulus from the carcinoma cell itself, the ossification is usually accompanied by osteoclasia and in some cases spontaneous fractures occur.

Tumors in any part of the urinary tract seem to share with those of the prostate the tendency to form metastases in the bones. The author reports four cases of carcinoma of the bladder with secondary deposits respectively in the radius, skull, tibia, and ribs.

Hypernephromata often are symptomless as primary growths. Therefore their metastases in bone may sometimes be erroneously considered primary. Cases with involvement of the humerus, clavicle, tibia, radius, and ulna are reported. Cases of bone metastasis from uterine tumors are numerous. One case of testicular tumor with deposits in the spine is reported.

Tumors of the tongue do not give rise to bone metastases very frequently, but one case is reported of an epithelioma of the femur primary in the tongue. Museum specimens are mentioned which show metastatic carcinoma of the femur, pelvis, and ribs, respectively, from a primary growth in the esophagus. Cases of carcinoma of the stomach and the large intestine causing metastases in the bones, and

a case of liver growth causing a deposit in the spine are on record.

In one case of melanotic sarcoma of the thumb deeply pigmented melanotic growths were found in a rib and in the femur.

In the diagnosis of these bone tumors the primary growth is sometimes overlooked. Five cases of renal and adrenal neoplasm are mentioned in which the bone tumors were regarded as primary because of the obscurity of the primary lesions. According to Delbet, the secondary tumors usually affect the shaft while primary lesions are in the epiphyses. Pain is not common. Deformity or spontaneous fracture may be the first sign noted. Anæmia may be severe. Roentgenograms help materially, but as a rule do not differentiate between primary and secondary growths.

The benefit from operation on secondary growths is usually transitory, but in some cases the patient has lived eight or ten years after resection. Of the operative procedures, limited resection is usually to be preferred to amputation, especially for growths secondary to thyroid and renal tumors.

WILLIAM A. CLARK, M.D.

Chaton and Caillods: Myositis Ossificans Localized in an Area of Necrobiosis (Foyer de myosite ossifiante localisé en état de nécrobiose). *Presse méd. Par.*, 1923, *xxxi*, 228.

The patient was a farmer who, 40 years previously, sustained a severe injury of one leg, including dislocation of the knee and fracture of the ankle. Subsequently a bony tumor appeared on the leg. When opened, this was found to be reddish, soft in the center, and formed in linear columns much like a sarcoma. No bleeding was encountered. The entire mass was removed.

The authors believe that at the time of the accident the muscles in the leg were torn and that a chronic sclerosing myositis then developed which ended in an ossifying process.

Histologic examination confirmed the presence of ossifying myositis and the absence of sarcoma.

In conclusion the authors state that the type of tumor described should be borne in mind in order that it may not be confused with sarcoma.

KELLOGG SPEED, M.D.

Kusnetzowsky, N. J.: A Case of Multiple Xanthomatous Granulomata in Tendons (Ein Fall multipler xanthomatoeser Granulome in den Sehnen). *Arch. f. klin. Chir.*, 1923, *cxxiv*, 73.

The case reported was that of a man 40 years of age who for two years had noted the presence of multiple nodules along the course of the tendons in his legs and forearms, on the dorsal aspect of his hands, and at the sites of insertion of the tendons under the skin. In part, the localization was symmetrical. Microscopic examination revealed typical so-called xanthoma cells in the masses.

The author states that this case had nothing in common either clinically or pathologically with the

so-called xanthosarcomata described in the literature. It differed from them by the multiplicity of the nodules, the exclusive involvement of the tendons, and the absence of giant cells and pigment. Kusnetzowsky defines the changes as circumscribed accumulations of xanthoma cells in granulation tissue which had undergone a transition into fibrous tissue within the tendon and lifted up the normal structure of the tendon. He regards the condition as an inflammatory rather than a neoplastic process, and attributes it to the local excretion of cholesterol combinations due to a general disturbance of metabolism.

RIEDER (Z).

Fisher, A. G. T.: The Nature of the So-Called Rheumatoid Arthritis and Osteo-Arthritis.
Brit. M. J., 1923, ii, 102.

The underlying reasons for the present state of confusion in the problem of arthritis are ignorance of the fundamental principles of the physiology of the articulations, their histologic structure (especially regarding the synovial membrane), and the true nature of the pathologic changes in the disease. There is also a woeful lack of uniformity in the nomenclature and of co-operation between the surgeon, internist, and specialist in the diagnosis and treatment.

The author recognizes three types: Type 1, in which the disease begins in the central cartilage with late involvement of the synovia; Type 2, in which it begins in the synovia; and Type 3, in which it seems to begin simultaneously in the cartilage and synovia.

Type 1. The earliest changes are in the central cartilage. Macroscopically this area is yellowish instead of the normal translucent bluish-white. On staining, the superficial layer takes the stain very faintly. At a later stage a fibrillation or splitting of the matrix is observed. This process is regarded as degenerative. Later still there is proliferation of the marginal cartilage and bone, due supposedly to irritation, which results in the lipping seen in roentgenograms. The cartilage tends to disappear. The synovia finally becomes more villous and vascular without diminution of the synovial fluid. Arteriosclerotic changes may supervene.

Trauma due to repeated mechanical stress or confusion, usually occupational in nature, may be an etiological factor in this type. The rôle of bacterial or metabolic toxins as a cause is still undecided.

Type 2. Every stage of acuteness may be seen, from marked pain and spasm with contractures to mild symptoms without limitation of motion. The term "atrophic" as applied to this type is unfortunate since the atrophy is the result of disuse rather than a primary condition. The process is of a pronounced inflammatory nature. The articular cartilage may be invaded by a pannus of granulation tissue growing in from the vascular synovia. Periarthral lifting, which may occur in the later stages, may be an attempt of the body to extend the articular surface.

The lateral part of the articular cartilage is better nourished than the central part because of its perichondrium and better blood supply. This may explain why the lateral areas are less susceptible to degenerative changes than the central parts. Pressure probably plays no part. The author has noted in a large number of knee cases that the changes nearly always begin in the trochlear area of the femoral cartilage and the central part of the patellar cartilage rather than the condyles where the pressure is greatest. After the experimental production of a condition of osteo-arthritis by removal of the central cartilage it has been noted that repair resulting in the characteristic lipping takes place around the margin and not in the denuded central area.

Although it is rare to find organisms in these joints, there is abundant clinical evidence of the infectious nature of the disease. The problem of etiology is one for the bacteriologist and chemical pathologist working in conjunction with the surgeon.

WILLIAM A. CLARK, M.D.

Schmidt, G.: Habitual Displacement of the Ulnar Nerve in Cubitus Varus and Valgus (Ueber habituelle Ellenervverrenkung in Beziehung zu Cubitus varus und valgus). *Zentrabl. f. Chir.*, 1923, i, 474.

The literature contains little regarding this condition. Ulnar nerve displacement occurs in both cubitus valgus and cubitus varus. Cubitus varus especially favors such displacement as in this condition the nerve stands out like a bowstring. Momberg has reported one case of nerve displacement in post-fetal cubitus varus.

In this article the author reports a case of bilateral cubitus varus in which, upon sudden extension of the arm and hand, pain radiated into the hands, especially the little finger. The angle of the cubitus varus was 155 degrees. In the hand, the pisiform bone protruded volar- and ulnar-ward. When the forearm was suddenly extended, the nerve slipped easily from its bed. As there was no history of injury or disease, it may be concluded that the cubitus varus was of fetal origin and due to faulty embryonic development or lack of sufficient uterine space. The forked position of the hand also proved the constitutional weakness of the ligaments and joint capsule.

VORSCHUETZ (Z).

Sattler, E.: Synovial Inflammation of the Tendon Sheaths of the Hands and Feet as an Occupational Disease (Synoviale Sehnenscheidenentzündungen als Gewerbskrankung an Haenden und Fuessen). *Arch. f. klin. Chir.*, 1923, cxliii, 259.

After a review of the anatomy of the tendon sheaths and the location of the different bursæ in the hands and feet, the author discusses in a general way the nature of inflammation of the tendon sheaths which affects particularly brakemen, locksmiths, carpenters, and women whose occupation requires twisting and rubbing motions of the hands. The process is usually subacute.

Sattler recommends conservative treatment by puncture and repeated injections of from 1 to 3 c.cm. of Calot's solution. Injections of larger quantities may produce irritation which will cause the formation of melon-seed bodies eventually simulating tuberculosis. By this conservative treatment painful cicatrization is prevented. TOBLER (Z).

Lang, F. J.: Microscopic Findings in Juvenile Arthritis Deformans—Legg-Calvé-Perthes Osteochondritis Deformans Coxæ Juvenilis—and Comparative Research Regarding the Epiphysis of the Head of the Femur, with Particular Reference to the Fovea Centralis (Mikroskopische Befunde bei juveniler Arthritis deformans—Osteochondritis deformans juvenilis coxæ Legg-Calvé-Perthes—nebst vergleichenden Untersuchungen ueber die Femurkopfeiphysse mit besonderer Beruecksichtigung der Fovea). *Arch. f. path. Anat.*, 1922, ccxxxix, 76.

This article reports a very thorough macroscopic and microscopic study of three cases of juvenile arthritis deformans and is illustrated by thirty-seven excellent photographs and diagrams.

From anatomical and histological facts it would appear that in arthritis deformans the margins and region of the fossa and the round ligament of the head of the femur are the first to exhibit changes. This is true also in juvenile arthritis deformans. The author describes the normal fovea and epiphysis of the head of the femur in childhood (at the second, seventh, ninth, and twelfth year of age) for purposes of comparison.

The diagnostic features of juvenile arthritis deformans are the limitation of the condition of the region to the fovea of the head of the femur and the evidences of trauma.

From the standpoint of etiology, two forms are distinguished: one, which is bilateral, dependent on developmental disturbances, and characterized by remarkable symmetry and the presence of numerous points of ossification in the epiphysis of the head of the femur that have developed in an irregular and interrupted manner; and the other, which is unilateral and appears to be the result of injury to the region of the fovea of the head of the femur.

One of the author's cases of bilateral juvenile arthritis deformans was that of a 9-year-old boy. The histological changes in the cartilaginous ground substance and the osteocartilaginous border were not limited to the region of the centers of ossification in the epiphysis, being found also in the osteocartilaginous border of the diaphysis. In the acetabulum initial stages of arthritis were seen in areas characterized by penetration of the cartilage by capillaries. In the fossa acetabuli the chief change of a peculiar nature was a deposit of osteophytes caused by dragging on the round ligament of the hip-joint which had been put in a state of tension by flattening of the head of the femur.

One of the author's cases of unilateral arthritis deformans limited to the region of the fovea was that of a 50-year-old man in whom a very large encap-

sulated cyst due to hæmorrhage had developed apparently as the result of an injury sustained in youth. On closer study the local continuation of quite typical arthritis deformans was seen in the region of the margins of the fovea.

As a result of mechanical influences of functional or traumatic nature, all of the cases studied showed foci of splinters of calcified cartilaginous substance and collections of détrit, brought often from a distance, with reactive changes in the vicinity. In certain areas bony trabeculae had been split and their fragments rubbed smooth by long-continued friction and coated with mucoid material.

In both forms of juvenile arthritis deformans functional and traumatic injuries play a decisive rôle and by their progress and sequelæ determine the insidiously progressive character of the disease.

As to whether cretinoid bone disturbance favors the appearance of juvenile arthritis deformans (Læwen), the author states that the head of the femur of a 10-year-old cretin examined for comparison showed no signs of advancing blood vessel, marrow space, or bone formation, and hence no signs of deforming arthritis in spite of various local changes due to loosening and separation of the cartilaginous ground substance of the femoral epiphysis in the region of the osteocartilaginous border of the diaphysis.

STEGEMANN (Z).

Robin: Two Cases of Deforming Osteochondritis of the Hip, One Followed for Eleven Years and the Other Complicated by Congenital Lumbar Kyphosis (Deux cas d'ostéochondrite déformante de la hanche dont un suivi pendant onze ans et un autre accompagné de cyphose congénitale lombaire). *Rev. d'orthop.*, 1923, xxx, 229.

The first case was that of a girl of 9½ years who began to limp eight months before she was examined by the author. Her hips appeared thickened, but the limping did not resemble that of congenital dislocation. Pressure over the heads of the femora while she was in the recumbent position revealed slight looseness. There was no inguinal adenitis or skin change. Movements of the hips were normal except for limitation of abduction. The X-ray confirmed the diagnosis of infantile deforming osteochondritis. There were changes in the head and neck of both femora and in both acetabula. The epiphyseal line of the head was flattened, the epiphyseal cartilage showed irregularities, and the femoral head was enlarged. On the right side there was loss of calcification. Both acetabula were irregular and the joint spaces were enlarged. The second, third, and fourth lumbar vertebrae showed a kyphosis, and in this area pressure was slightly painful. Flexion, lateral bending, and rotation of the spine elicited no pain. The reflexes and sensation in the legs were normal.

Antero-posterior X-ray examination of the spine showed a dorsolumbar scoliosis to the right with decalcification of the third lumbar vertebra. The lateral view showed that the body of this vertebra

was reduced two-thirds in size. The four other lumbar vertebrae were more or less deformed. A fenestrated plaster corset was applied.

This case was interesting on account of its bilateral character, which is unusual, and on account of the changes in the acetabula and the lumbar vertebrae. The author is inclined to believe that the change in the spine was a congenital aplasia.

The second case was that of a 13-year-old boy with coxalgia and a lump on the right side. Hip movement was normal except for slight limitation of abduction. The X-ray revealed osteochondritis. Eleven years later this patient was a vigorous man without any limp or disability but with slight atrophy of the thigh muscles. Two skiagrams taken eleven years apart are shown.

KELLOGG SPEED, M.D.

Kreuscher, P. H.: Unusual Injuries about the Knee Joint. *Surg. Clin. N. Am.*, 1923, iii, 1127.

The author reports three cases of injury to the knee joint which prevented extension of the leg on the thigh but showed no external evidence of trauma except slight bruising of the skin. In the first the patella was dislocated downward, in the second it was dislocated upward, and in the third it was dislocated far outward from its usual position.

CASE 1. The patient was a man 28 years of age, who, while exercising in a gymnasium, suddenly slipped, striking his right knee upon a metal bar. The accident caused excruciating pain. The leg was straightened but very soon the knee joint began to swell. The patient was able to flex the knee but not to extend it. He entered the hospital six hours after the accident. The X-ray revealed no injury. Physical examination showed the knee to be filled with fluid. Aspiration was done with the examining finger upon the skin just below the patella. After one week it was possible to introduce the finger deeply into the joint cavity.

At operation a semilunar incision was extended one inch lower than the line of rupture in the capsule and the skin was dissected back with considerable difficulty. Numerous shreds of tissue were found, some attached to the patella and others to the tubercle of the tibia. The capsule was sutured and the shreds of tendon were brought together. The joint was then closed without drainage and placed in a straight posterior plaster splint with Buck's extension of about 10 lbs. After six weeks the patient was permitted to make an effort at flexing the knee. Eight months after the operation he was able to extend the leg without the slightest difficulty.

CASE 2. This case was that of a man 32 years of age who was injured in an automobile accident. X-ray examination was negative. On physical examination ten weeks after the accident the stump of the quadriceps extensor tendon was found $1\frac{1}{2}$ in. above the upper end of the patella. A transverse incision was made. The joint contained a very small quantity of clear fluid. The tendon

stump was found but was too short to allow apposition. Two lateral incisions were made just at the side of the rectus femoris tendon and extending upward about 3 in. to divide the attachment of the vastus lateralis and the vastus medialis, the stump of the tendon was brought down to the patella, and the tendons of the lateral muscles were sutured in position. The patella was prepared for the attachment by incising and deflecting the periosteum backward and drilling three holes through the patella from before backward. The tendon was then brought down and sutured with kangaroo tendon by several mattress sutures. This having been done, the reflected periosteum was brought back and united to the tendon, the wound closed, and a posterior splint applied. After seven weeks the patient was permitted to make active motion of the knee joint. He was able to flex the leg acutely on the thigh and to extend it completely with considerable strength.

CASE 3. The third case was that of a woman injured in an automobile accident. Examination showed the patella to be displaced outward upon the external aspect of the knee joint with the leg in a flexed position. The patient entered the hospital one year after the accident. She walked with a cane with the right leg in a knock-knee position, distinctly flexed. A modification of the Trethowen incision was made and the tissues were exposed. The fibers of the vastus medialis were found severed and the capsule torn. The capsule and the fibers of the vastus medialis were reconstructed and the wound closed with drainage. The leg is now straight and has good function, and the knee cap is in normal position.

S. C. WOLDENBERG, M.D.

Boularan and Bounhoure: A Clinical and Anatomical Study of a Case of Congenital Genu Recurvatum (Étude clinique et anatomique d'un cas de genu recurvatum congénital). *Rev. d'orthop.*, 1923, xxx, 245.

Congenital genu recurvatum is probably the result of ligamentous and diaphyso-epiphyseal changes with muscular contractions due to a vicious position in the uterus. The pressure may be either extra- or intra-uterine. Subluxation of the tibia or femur results and is followed by hyperextension of the leg on the thigh. Mechanical factors may explain also many of the cases of congenital hip dislocation associated with this condition.

The patient whose case is reported was a $6\frac{1}{2}$ -year-old girl who entered the hospital for the treatment of congenital dislocation of the left hip. Genu recurvatum on the left side had been present since birth. The child's first teeth appeared when she was 8 months old. She was not able to walk before her third year. On her admission to the hospital the left leg lay in slight abduction and external rotation and showed slight shortening. There were two deep folds in the peripatellar skin region, some degree of genu valgum, almost complete obliteration of the popliteal folds, and compensatory scoliosis

with pelvic tipping. The left foot was in equinus. Palpation revealed posterior dislocation of the femoral head. The knee showed looseness and marked limitation of flexion.

When the patient walked, the genu recurvatum became more marked and she required support. Further examination revealed a total loss of power in the extensors of the left leg. This the authors regarded as the result of an overlooked infantile paralysis.

The Roentgen-ray showed typical dislocation of the hip, and the lateral view of the knee joint revealed absence of ossification in the patella with antero-posterior flattening of the elongated femoral epiphysis.

The hip was easily reduced by open operation and the leg then immobilized in flexion abduction and internal rotation, with the knee flexed to 90 degrees. After a few days, fever, sore throat, and a scarlatini-form rash appeared and were followed by septicæmia and death.

At autopsy great difficulty was experienced in reproducing the hip dislocation which had been operated upon only a month before.

Anatomical study of the knee showed the subcutaneous tissue infiltrated with fat and the muscles pale and fatty but well developed and in normal position. There was no dislocation of the biceps tendon. A pus sac was found under the quadriceps. The patella was entirely cartilaginous. The femoral condyles were narrow, and the internal was longer than the external. The menisci were thickened and the upper articular surface of the tibia was inclined forward and downward more than normal. All ligamentous insertions were normal.

KELLOGG SPEED, M.D.

Dujarier, C., and Weil, M. P.: Gonorrhœal Arthritis of the Knee; Failure of Serotherapy; Arthrotomy; Cure with Conservation of Movement (*Arthrite blennorrhagique du genou; échec de la sérothérapie; arthrotomie; guérison avec conservation des mouvements*). *Bull. et mém. Soc. de chir. de Par.*, 1923; xlix, 308.

The author operated upon three cases of gonorrhœal arthritis of the knee which he had treated unsuccessfully with intra-articular injections of serum. He opened the joint, cleaned out the détrit, washed the surfaces with ether, and closed the capsule completely. Mobilization was begun early, and good function with only slight limitation of movement was obtained.

In the discussion, Bazy and Rouvillois stated that in some cases of gonorrhœal arthritis intra-articular serotherapy is very efficacious, but in others is without effect or harmful. If local serotherapy is not followed by immediate success, it should be abandoned as it may cause irritative arthritis.

Thiery reported that he had treated three similar cases by arthrotomy with ideal results.

RUDOLPH MARX, M.D.

Lewin, P.: Juvenile Deforming Metatarsophalangeal Osteochondritis. *J. Am. M. Ass.*, 1923, lxxxi, 189.

In juvenile deforming metatarsophalangeal osteochondritis the distal epiphysis of the metatarsal is flattened, the neck is broadened, the epiphyseal line is irregular, and the joint space is widened. There is usually diminished cupping of the phalangeal articular surface and also possibly the presence of loose bodies.

The condition is thought to be analogous to Legg-Perthes disease of the hip, Koehler's disease of the scaphoid, and Osgood-Schlatter disease of the tibia. It was first described by Freiberg in 1913 as "infraction of the metatarsal head." The author has collected sixty-three case reports from the literature and adds two of his own.

The condition has been attributed to trauma, disturbances of circulation, and infection. Freiberg, Campbell, and others believe that trauma is the cause.

The second toe is the one most often affected, the explanation being that this metatarsal bears the brunt of the impact in jumping on the balls of the feet because it is longer than the others. Legg regards trauma as the cause of a circulatory disturbance which results in atrophy of the epiphysis. Axhausen attributes the lesion to blocking of the end arteries by emboli of tuberculous fragments or weakly virulent pyogenic cocci.

The disease is most frequent in adolescence. The symptoms are pain, tenderness, and limitation of motion. Swelling is usually present because of exudate, but no increase in joint tension is demonstrable.

It is possible that certain cases of metatarsalgia, especially those of children, may be due to this condition.

The diagnosis is based on the history and the roentgen-ray examination. In the differential diagnosis, metatarsalgia, periostitis, fracture, dislocation, syphilis, and Still's disease must be considered. The prognosis is excellent, the symptoms lasting only a few weeks.

The treatment is similar to that of metatarsalgia, i.e., relief from weight bearing.

The first case reported by the author was that of a girl of 14 years. Pain had been present at the base of the third toe for six months. There were no visible or palpable abnormalities. Tenderness was found over the head of the third metatarsal. The diagnosis was confirmed by the X-ray. A cure was effected in five weeks by the application of a splint to the toe and the use of crutches.

The second case was that of a girl of 12 years who complained of pain in the ball of the foot and tenderness over the head of the second metatarsal which had been present for two weeks. The diagnosis was confirmed by the roentgen ray. The symptoms disappeared in about two months under treatment with the deep-therapy lamp and alpine light.

WILLIAM A. CLARK, M.D.

SURGERY OF THE BONES, JOINTS, MUSCLES, TENDONS, ETC.

Hey Groves, Putti, MacAusland, and Others: Discussion on Arthroplasty at the International Congress of Surgeons. *Brit. M. J.*, 1923, ii, 122.

Arthroplasty was defined as an operation performed upon an ankylosed joint to restore mobility.

Hey Groves, Putti, and MacAusland agreed in general on the following points:

1. The patient should be of an age and state to withstand a long and traumatizing operation, mentally cooperative, and able to endure tedious hospitalization.

2. The most favorable results are obtained in cases following trauma, pyæmia, or gonococcal infections in which the infection is at an end.

3. Osseous ankylosis is easier to correct than fibrous ankylosis. Ankylosis of tuberculous origin should be operated upon only exceptionally.

4. There are absolute indications for arthroplasty in ankylosis of the mandible, bilateral ankylosis of the hip, ankylosis of the elbow in extension, and polyarticular ankylosis.

5. In cases of ankylosis of one knee, arthroplasty should be advised with caution as lateral stability and security are of first importance.

With regard to the development of the operation, special reference was made to Baer's work with chromicized pig's bladder and Murphy's advocacy of the pedunculated flap. Putti and Page have found the use of free fascia most successful. Essentials in the operation are the formation of a sufficient gap between the bone ends, the shaping and covering of the articular facets, the provision of ligaments and synovial fluid, the prevention of undue mobility, and the restoration of function.

The first passive motions should be begun twelve to fifteen days after the operation. Sanby of Lyons stated that surgical mobilization of ankylosed joints has been little done in France as Ollier's mobilizing resection still continues in vogue. He maintained, however, that arthroplasty is an improvement.

Elmslie of London contended that the ankylosis of any individual hip, knee, or ankle in good position is preferable to the results obtained by any form of arthroplasty, but advocated the latter in cases of ankylosis of non-weight-bearing joints in which it is easier to obtain free movement.

Jirasck stated that in arthroplasties done in Kalkula's clinic in Prague the interposition method with the use of fat grafts has given good results.

R. C. LONERGAN, M.D.

Hecquet: Total Subperiosteal Removal of the Clavicle in a Case of Osteomyelitis and Regeneration of the Bone (Ablation totale sous-périostée de la clavicule dans un cas d'ostéomyélite et réparation de l'os). *Presse méd.*, Par., 1923, xxxi, 276.

In osteomyelitis of the clavicle in adolescents an incision through the periosteum the entire length of the bone is usually sufficient to effect a cure. In

some instances, however, the inflammation continues and a sequestrum of the entire bone is formed.

In the author's case of acute osteomyelitis the sequestra and the clavicle were removed *en bloc*, but because of preservation of the periosteum the bone was completely regenerated. The clinical course was complicated by orchitis, temporo-maxillary inflammation, and myocarditis. All of these cleared up after the use of autogenous vaccines. The orthopedic and functional result was very good. There was no compression of the brachial plexus or pain in the shoulder or arm. Function was completely restored.

KELLOGG SPEED, M.D.

Page, C. M.: Four Cases of Flexion Contracture of the Forearm Treated by a Muscle-Sliding Operation. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Orthop., 43.

The operation described consists in detaching the origins of the entire flexor group of the forearm. If the flexor longus pollicis is contracted, the process of muscle stripping is carried across the interosseous membrane so that the attachment of the thumb flexor to the front of the radius will also be raised. The bicipital fascia is divided if necessary. The hand is put up in the corrected position on a metal splint. A few days later the splint is replaced by a plaster mold.

Voluntary control of the muscles is lost or becomes very weak but is recovered gradually after a few days. Throughout the convalescence, physiotherapy is employed with proper splinting.

Of four cases treated in the manner described the results were good in two, fair in one, and unsuccessful in one.

RUDOLPH S. REICH, M.D.

Colonna, P. D.: Hamstring Transplantation for Quadriceps Paralysis. *J. Bone & Joint Surg.*, 1923, v, 472.

The author reviewed 101 cases to determine the end-results of transplanting one or more hamstrings for loss of function in the quadriceps. In seventy-eight cases transplantation of the biceps was done, and in twenty-three the inner hamstrings were used. Seventy-five of the cases were operated upon by Whitman.

In paralysis of the quadriceps alone without associated joint deformity an ideal result may be obtained. In cases of deformity, such as knock knee, etc., the deformity must be corrected first.

In walking, extension is assisted by gravity. Weight-bearing necessitates a strong quadriceps to hold the leg extended.

In some cases a stabilizing operation on the foot is necessary to permit the use of the transplanted hamstrings. In twenty cases astragalectomy was performed. The technique was the same for all cases. An incision was made on the outer or inner side of the thigh, extending from about the middle to a little below the knee. The biceps insertion with a section of bone or cartilage was separated from the head of the fibula with the short attachment of the

biceps to the femur, care being taken not to injure the peroneal nerve. The muscles were exposed high enough to permit pull in a direct line from the ischial tuberosity to the patella. An incision was then made to expose the quadriceps tendon and the transplanted tendon was drawn through the subcutaneous tunnel. The bony fragment on the end of the tendon was secured under the periosteal covering of the patella by means of kangaroo sutures.

The wounds were then closed with plain catgut and a cast was applied from the toes to the groin with the knee in full extension. The cast remained on for from six to eight weeks. The posterior shell was then retained as a splint and exercises begun in bed. After three or four weeks the patient was allowed to bear weight on the limb, but wore a supporting brace for several months.

The author draws the following conclusions:

1. Satisfactory results are the rule.
2. Deformity should be corrected before the transplantation is done.
3. Transplantation of the biceps gives better results than transplantation of the other hamstrings, provided the biceps is strong.
4. Negative results may follow if the hip extensors are also paralyzed.

JOHN MITCHELL, M.D.

Engel, H.: The Operative Treatment of Hallux Valgus on a Physiological Basis (Zur Frage der operativen Behandlung des Hallux valgus nach physiologischen Grundsätzen). *Arch. f. orthop. u. Unfall-Chir.*, 1923, xxi, 437.

The author, using Gocht's material, investigated the question as to whether the old hallux valgus operation of Hueter, as practiced at the university orthopedic clinic, compares favorably with the new method of Ludloff and Hohmann which is founded upon a physiological basis. The operation recommended in Germany by Rose and in France by Sayre and later systematically employed by Hueter consists in removal of the head of the first metatarsal. Gocht practiced it for twenty-five years in numerous cases with excellent results. The author re-examined the cases treated in the period from 1916 to 1920. To eighteen of these he adds three more from Gocht's private practice.

Engel comes to the conclusion that Hueter's method of operation, which is still most favored in Germany and France, meets with the physiological demands established by Ludloff and Hohmann. It does away with the deviation of the great toe, with the formation of bursa and exostoses on the median pole of the head of the first metatarsal, with tendon transplantation, and with subluxation and turning of the toe. The shortening of the first metatarsal through the removal of its head, and in some cases of a portion of the adjacent shaft, results in balancing of the fixed and the elastic forces operating against the valgus position of the great toe. In injury to the supports of the arch, particularly the adductor hallucis, a cure of the spreading arch usually does not occur. As a rule

the mechanism of the great toe is almost entirely restored as regards its active and static function in the course of a year and a half. Therefore in the author's opinion the old Hueter method of operating for hallux valgus is as physiological as the method of Ludloff and Hohmann. The results obtained by Gocht with this method were satisfactory.

GLASS (Z).

FRACTURES AND DISLOCATIONS

Henderson, M. S.: Non-Union in Fractures: The Massive Bone Graft. *J. Am. M. Ass.*, 1923, lxxxi, 463.

This article is based on a review of 221 cases of non-union culled from approximately 1,000 cases of old fractures consisting of malunions, delayed unions, etc., that have been observed in the Mayo Clinic during the last ten years. In making this classification a sharper line has been drawn than formerly in separating the cases of non-union from the cases of delayed union.

One hundred and eighty-four of the 221 cases were traced; union has occurred in 138 (75 per cent) and has failed to occur in forty-six (25 per cent). Twenty-seven patients were not traced, and ten are still under observation.

FINDINGS IN 221 CASES, MAY 21, 1923

Bones	Cases	Result determined	Cures		Failures	Not traced	Under observation
			No.	Per cent			
Femur							
Hip.....	40	33	19	57.5	14	4	3
Shaft.....	30	24	15	62.5	9	2	4
Tibia.....	54	44	36	81.8	8	8	2
Humerus.....	41	37	26	70.2	11	3	1
Radius.....	20	15	14	93.3	1	5	0
Radius and ulna.	18	14	12	85.7	2	4	0
Patella.....	9	9	9	100.0	0	0	0
Ulna.....	8	7	6	85.7	1	1	0
Clavicle.....	1	1	1	100.0	0	0	0
Total.....	221	184	138	75.0	46	27	10

The fractures involving the different bones are discussed in detail as to their site, etc. There were nine cases of non-union of a fracture of the tibia which had been sustained at birth or in infancy. Operations performed in six of these before the age of puberty were all failures, but in the cases operated upon after the age of puberty union resulted. On the basis of this experience with intractable non-union in children it is thought advisable to postpone operative measures until after puberty, maintaining the length and alignment of the leg as well as possible by the use of braces.

It was found that a detailed statistical study was of little or no value with regard to the etiology. All of the patients were free from constitutional disabilities which might have a bearing on the condition, with the exception of osteitis fibrosis cystica. Syphilis was a negligible factor in the series. Except in fractures of the hip, the interposition of muscle

combined with severe twisting and crushing trauma was regarded as the most probable common cause of non-union.

A chemical analysis of the blood was made in twenty-one cases. In certain cases there was a suggestion of lowered magnesium content, but otherwise the findings were negative.

Attention is directed to the fact that many failures are due to the lighting up of infections in old chronic cases, and that it is well to beware of the recently healed sinus, the scar that is red, local heat that persists, and a semi-brawny "feel" of the part. In the majority of cases the massive graft is preferred to the ordinary inlay graft of Albee; in addition, the osteoperiosteal graft is used. Beef-bone screws are employed to fix the graft firmly to the parts.

In reviewing the cases as a whole the author states that the incidence of non-union was greater in the femur than in any of the other bones; there were forty ununited fractures of the neck and thirty of the shaft of the femur. The tibia ranked next with fifty-four; the humerus had forty-one; the radius alone had twenty; the radius and ulna combined, eighteen; the patella, nine; the ulna, alone, eight; and the clavicle, one. The causes of non-union are usually indeterminate, but the interposition of muscle fibers, fixation which is inadequate not only in quality but also in quantity (time), too early weight-bearing, and needless inspections and examinations when the union is delayed may be mentioned as chief among the local causes. In the author's experience, general or constitutional conditions have rarely been of consequence. It seems paradoxical that any number of fractures may heal in a frail, pale, worn-out-appearing child with osteogenesis imperfecta, whereas not one may unite in a large, robust man. Severe crushing and twisting trauma may so devitalize the tissue and lead to the formation of scar tissue as to be a factor in the production of non-union. There is also the inexplicable type of non-union occurring even though the ends of the bone are in apposition, the position is all that could be desired, and the treatment is in all respects satisfactory.

The average percentage of successful results in the series of cases reviewed was 75, ranging from 57.5 in fractures of the hip to 93.3 in those of the radius. Named in the order of best results, the bones were the patella, radius, ulna, tibia, humerus, shaft of the femur, and neck of the femur. The failures, the author believes, were due chiefly to the use of a small graft, improper and inadequate internal fixation of the graft, inadequate external fixation, and sepsis. There were twenty-two infections following operation, approximately 10 per cent. The fact that infection occurred in ten of the 133 fractures in the lower extremities and in twelve of eighty-eight fractures in the upper extremities suggests that the lower extremity is more resistant to infection than the upper. The rarity of infections following extensive operations on the feet substantiates this view.

The massive graft with proper internal fixation, the selection in the previously infected cases of the most opportune time for operation, the avoidance of prolonged operations, the maintenance of adequate postoperative fixation, and, in the lower extremity, the avoidance of too early weight-bearing will materially increase the percentage of successes.

M. S. HENDERSON, M.D.

Descomps, P.: The Operative Treatment of Acromio-Clavicular Dislocations (Le traitement sanglant des luxations acromio-claviculaires). *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 294.

The author has operated upon five cases of acromio-clavicular dislocation complicated by rupture of the coraco-clavicular ligaments. In this severe form of dislocation the most important condition is the rupture of the ligaments. In the connection between the clavicle and the scapula, the fixation due to the ligaments is of more importance than the mobility due to the joint. Therefore this connection must be restored in order that the shoulder girdle may be moved *en bloc* above the thorax.

In four cases the author brought the coracoid process and the clavicle together by means of a strong wire without suturing the clavicle to the acromion directly. In two cases removal of the wire was necessary later. In the last one, strong silk was used. This tore after a few days, but not until sufficient consolidation had occurred.

The immediate results were satisfactory in every instance. The only patient whom the author has been able to trace for a long time has full mobility of the shoulder.

RUDOLPH MARX, M.D.

Davis, G. G.: The Treatment of Dislocated Semilunar Carpal Bones. *Surg., Gynec. & Obst.*, 1923, xxxvii, 225.

When dislocation of the semilunar carpal bone is diagnosed immediately, it is treated by manipulation. When the diagnosis is not made until after a number of weeks or months and when the dislocation cannot be reduced by manipulation, open reduction with the use of a semilunar skid is indicated. When the condition has not been diagnosed or operation has been refused or has failed, the semilunar bone should be removed. Davis recommends the following method for open reduction:

An incision is made over the dorsal surface of the wrist, and flexion of the wrist and traction on the hand with countertraction on the arm are employed to increase the space between the bones. A special nickel steel skid curved on the flat surface is then inserted between the closely wedged bones so that the distal curve of the skid engages the lip of the semilunar bone and the proximal curve slides over the os magnum.

If reduction cannot be effected by means of the skid, it is advisable to remove the bone by an anterior incision rather than to endeavor to take it out through the usual dorsal incision employed for the open reduction.

Four cases are reported and the article is illustrated with fifteen roentgenograms.

S. C. WOLDENBERG, M.D.

Dujarier, C.: Pseudarthrosis of the Neck of the Femur; Osteoperiosteal Grafting; Cure (Pseudarthrose du col fémoral; greffe ostéo-périostique; guérison). *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 354.

The case reported was that of a man 23 years of age who fractured the neck of his femur in a fall. Four and one-half months after the accident the author resorted to osteoperiosteal grafting because of non-union. The patient was then put to bed without supporting apparatus.

After thirty-eight days he was able to raise his heel, and at the end of three months was able to walk without pain, and the clinical and X-ray findings were very satisfactory.

RUDOLPH MARX, M.D.

Walther: The Result of Suture of an Old Fracture of the Patella Followed by Suture of the Patellar Tendon Thirty-Two Years Later (Résultat d'une suture pour fracture ancienne de la rotule, puis d'une suture du tendon rotulien trente-deux ans après la dernière opération). *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 193.

After treatment in March, 1890, for fracture of the right patella by means of Duplay's hooks, the patient whose case is reported experienced pain in walking. After a second fall, when he first consulted the author, the knee was stiff, the two patellar fragments were distinctly separated, the upper fragment was immobile, and the quadriceps was atrophied. At operation the upper fragment was let down by dissection high up on the tendon, the fractured surfaces were freshened, and the fragments were wired together with silver wire. (The author did not begin to use horsehair for bone sutures until 1893.) The leg was immobilized sufficiently for bone union and then given exercise. Ultimately the patient returned to his work of delivering heavy bags of coal.

In March, 1911, he fell from a ladder with a sack of coal on his shoulder and with his leg doubled under him. After this accident there was extensive infiltration, and a distinctly palpable depression was noted between two fragments. At operation the quadriceps tendon was found torn from the patella. Its cup-shaped infiltrated end had suggested an upper fragment. The old fracture showed solid bony union. The silver wire sutures were removed. Following suture of the quadriceps tendon to the patella the patient made a complete recovery and

returned to his work. In 1923, after service through the war, the functional result was still unimpaired.

Championnière believes that this case is the first direct verification of osseous callus after suture of the patella.

WALTER C. BURKET, M.D.

Labey, G.: Fracture of the Internal Head of the Tibia with Great Displacement; Osteosynthesis; Early Walking (Fracture unicondylienne interne du tibia avec gros déplacement; ostéosynthèse; marche précoce). *Bull. et mém. de Soc. de chir. de Par.*, 1923, xlix, 195.

A girl 16 years of age was struck by an automobile and fell upon her right knee, sustaining an oblique articular fracture of the right tibial plateau, including the spine, and inward displacement of the fragment and the lower end of the femur. The external condyle of the femur being wedged in the gap between the articular surfaces of the displaced tibial fragment and the external half of the upper border of the tibia, the outer half of the articular surface of the tibia lost all contact with the femur and appeared to be displaced outward.

Under spinal anæsthesia induced with novocaine a horseshoe-shaped incision with its base upward was made and extended laterally from behind the femoral condyles and anteriorly under the tuberosity of the tibia. The patellar ligament was laid bare, and the anterior tuberosity detached and lifted up with the tendon to expose the joint. The joint contained clots of blood. The external condyle was disengaged from between the two fragments of the tibia by inclining the knee inward. The fragment consisting of the internal tibial plateau was brought back and retained in position with Lambotte's clamps and the displacement of the femur was similarly reduced. The fragment was fixed in place by a long screw of wood with a head plate inserted transversely. The anterior tibial tuberosity was reapplied and fixed with two nails. The leg was then put up in extension.

The stitches were removed on the eighth day, and mobilization and massage were begun on the following day. The patient began to walk on the fifteenth day, and on the twenty-eighth day walked without a cane and ascended and descended stairs. Extension was complete and flexion was possible almost to a right angle. The postoperative X-ray examination showed perfect restitution of the articular surface of the tibia but slight posterior displacement of the internal tibial plateau.

In the author's opinion, open reduction by the transpatellar route of Alglave or the trans-tibial route gives the best anatomical and functional reconstruction.

WALTER C. BURKET, M.D.

SURGERY OF THE BLOOD AND LYMPH SYSTEMS

BLOOD VESSELS

Hinman, F., Morison, D. M., and Lee-Brown, R. K.: *Methods of Demonstrating the Circulation in General as Applied to a Study of the Renal Circulation in Particular.* *J. Am. M. Ass.*, 1923, lxxxi, 177.

The exact reproduction of the vascular system by improved methods of injection and photography is superior to the best drawings and diagrammatic sketches. Hinman states that the celloidin injection method is best for demonstrating gross detail and the dye method is best to reproduce the minute capillaries. When preservation of the specimen is sought, the barium-sulphate X-ray study of the circulation is most desirable.

Morison describes a modification of the Krasuskaja and Huber method of celluloid corrosion. An injection mass composed of celluloid in acetone is used. When this is injected into cavities or blood vessels containing moisture, the celluloid is precipitated out and forms a cast, and the water readily combines with the acetone. The tissue is then macerated so that only the casts of the vessels remain. Solutions are made up of acetone, varying percentages of celloidin (the coarser the vessel to be injected the larger the amount of celloidin), and camphor and placed in stock "pressure" bottles provided with a two-holed rubber stopper with glass and rubber connections. Thoroughly dried celloidin (Schering) or washed X-ray films are employed, the latter for coarse vessels. Various dyes are used to color these solutions: cobalt blue, cinabar (red), etc. Alkanin (red) is the best for capillary injections; the finer the vessels to be injected the greater the quantity of dye necessary.

The solution is forced into the vessels by means of an apparatus consisting of a Wolfe bottle with a mercury manometer attached to a compressed air tank. Standard pressures are worked out for the injection. The vessels, which must be a closed circuit, are first washed with saline solution. A cannula is connected with the vessel, all air is eliminated from the system, and the required pressure is applied in the bottle. For gross specimens the injection is continued for thirty minutes at full pressure and the positive pressure is maintained for twelve to twenty-four hours. When large vascular trunks and the finer ramifications are to be injected, a weak celloidin solution is injected first for about five minutes and then a heavier solution is used. Capillary injection specimens must "set" for from one to three hours, and coarser preparations for from twelve to twenty-four hours. Corrosion or digestion of the surrounding tissues is accomplished by immersing the specimen in 0.3 to 0.5 per cent hydro-

chloric acid for three or four days or 75 per cent hydrochloric acid for from twelve to twenty-eight hours. The macerated tissue is removed with a fine stream of water. The specimens are mounted in water, formaldehyde, and glycerin under watch glasses on plate glass or in rectangular jars.

On the basis of specimens similarly prepared, except that they are kept in a water bath at body temperature during the irrigation if fine injections are to be done, Lee-Brown describes the roentgenological study of renal and other vessels injected with substances impervious to the X-ray. The completeness of the injection depends upon the viscosity of the injecting fluid, the nature of the specimen, and the pressure. Lower pressure is required for veins than for arteries. If the roentgenogram is to be made immediately after the injection, an aqueous solution of barium sulphate may be used for fine injections. If immediate roentgenography is impossible or larger vessels are to be demonstrated, a thin suspension of barium sulphate in a 50 per cent aqueous solution of sodium bromide is used. For repeated roentgenograms, gelatin kept well above body temperature is used instead of water.

For the demonstration of capillary distribution aqueous solutions seem to be superior to gelatin solutions. An aqueous solution of Berlin blue is best as it allows complete injection, causes no distortion, and is simple to prepare, chemically inert, and not affected by reagents used subsequently.

LOUIS S. FAUST, M.D.

Stincer, E.: *Anomalies of the Obturator Artery and Their Surgical Importance* (Las anomalías de la arteria obturatriz y su importancia quirúrgica). *Rev. de med. y cirug. de la Habana*, 1923, xxviii, 382.

The author calls attention to an anomaly of origin of the obturator artery which he does not find described in the textbooks. The obturator artery may arise from the external iliac, the epigastric, or, very rarely, from the femoral artery, either directly or from a trunk common to the epigastric.

The anomaly observed by the author was a very thick and tortuous obturator artery arising from the femoral artery. From its origin it was directed upward and inward, crossed the femoral vein, and passed through the crural ring to the pelvis; thence, after curving several times and without joining any other vessel, it passed toward the subpubic conduit and became distributed in the usual way. This anomaly was unilateral and occurred in a male.

The possibility of arterial anomalies should always be borne in mind. The anomaly described may compress the femoral vein and by obstructing the return circulation cause oedema in the lower limb.

W. A. BRENNAN.

Firson, A.: *The Use of Physiotherapy in Intermittent Claudication* (Die Anwendung der Physiotherapie bei Claudicatio intermittens). *Wratschebnije Djelo*, 1922, v, 221.

The author divides his cases of intermittent claudication into two groups, those in which the limping is due to arteriosclerosis alone and those in which it is due to arteriosclerosis and neuritis. The cases of the first group he treats by diathermy applied locally and over the heart and by d'arsonvalization and hot air baths. In those of the second group he employs galvanization in the four-cell bath in addition.

In all of four cases reported there was very marked improvement in the patient's condition, and in some of them the limping disappeared entirely.

VON HOLST (Z).

BLOOD AND TRANSFUSION

Herzfeld, E., and Schinz, H. R.: *Blood and Serum Examinations Immediately Before and After Roentgen Irradiation* (Blut- und Serumuntersuchungen unmittelbar vor und nach Roentgenbestrahlung). *Strahlentherapie*, 1923, xv, 84.

Studies of the influence of the X-ray on the blood which have been made to date have been directed primarily toward the changes in the morphological blood picture. The decrease in the number of leucocytes after an initial leucocytosis, which is probably merely a pseudoleucocytosis, i.e., a dispersal leucocytosis, is caused, not by the destruction of the leucocytes circulating in the blood, but by raying of the blood-forming organs and the destruction of lymphoblasts, myeloblasts, and immature polynuclears. The erythrocytes circulating in the blood are equally insensitive to the X-ray.

The authors' investigations were directed first toward measuring the absorption in the blood. No differences in absorption were found between distilled water, Ringer's solution, and blood. Therefore with equal layers on the water phantom the depth doses could be read directly and compared with those in samples of blood and serum. Viscosity determinations showed that immediately after deep raying the viscosity and the albumin content of the serum are diminished. Raying *in vitro* caused a marked acceleration of coagulation.

HARMS (Z).

Giffin, H. Z., and Holloway, J. K.: *Hæmorrhagic Purpura*. *Med. Clin. N. Am.*, 1923, vii, 241.

It is pointed out that usually a normal coagulation time, a prolonged bleeding time, and an intracutaneous clot associated with a marked decrease in the blood platelets are characteristic of hæmorrhagic purpura, and that it is necessary carefully to distinguish this condition from hæmophilia as ordinarily the former is amenable to surgical measures.

The reduced platelet count (thrombopænia) is apparently the characteristic but unexplained feature of hæmorrhagic purpura, since severe bleeding apparently does not occur until the platelet

count is below 60,000 for each cubic millimeter. Theoretically, the reduction in the platelets is the result of rapid destruction, and not of decreased production. There is reason to believe that the process is toxic, due primarily to some infection; that the toxin which acts on the blood and perhaps also on the vessels is, instead of the original organism, a secondary product, an abortive substance designed originally to protect. Splenectomy has been performed in the belief that the production of this toxin is essentially the function of the hæmolymph system of which the spleen is the major element. In several severe cases the results have been excellent.

Elimination of foci of infection in the minor and transitory cases is advised. Transfusions are usually necessary and are effective in improving the anæmia. A case report and a tabulation illustrate the futility of therapeutic measures in severe cases. However, in selected cases, splenectomy in conjunction with transfusions before and after operation appears to be a life-saving procedure. One patient mentioned is in excellent health three months after this operation.

J. K. HOLLOWAY, M.D.

Marañón: *Hæmorrhagic Complications Following the Use of Bismuth Salts* (Accidents hemorrágicos en enfermos tratados por las sales de bismuto). *Arch. de med., cirug. y especial.*, 1923, xi, an. de la acad. méd.-quirúrg. españ., 379.

Marañón reports three cases of severe hæmorrhage occurring in patients treated with bismuth salts. He concludes that in the cases of persons with a tendency to bleed, the use of these salts should be avoided entirely or they should be employed only with great caution.

W. A. BRENNAN.

Peterson, M. F., and Mills, C. A.: *A New Method for Accurately Determining the Clotting Time of the Blood*. *Arch. Int. Med.*, 1923, xxxii, 188.

The method described is based on the fact that when clotting first begins the blood ceases to flow back and forth in a capillary tube. Capillary tubes with an inside diameter of from 0.6 to 0.8 mm. are drawn from clean glass tubing and cut into about 1¼-in. lengths. The blood is obtained from a stab wound of the finger or ear after the first drop has been wiped off. The tube is touched to the second drop and the blood allowed to flow in by capillary attraction, about ¼ in. of the tube being left unfilled. The time is counted from the appearance of the second drop over the wound. Slight pressure to cause the drop to form rapidly is permissible, provided it is applied at a little distance from the wound.

After the tube has been filled, it is placed in one of the creases of the palm and completely covered by closing the hand. This gives a uniform temperature, somewhat below that of the body (about 35 degrees C.), and obviates the necessity for a water bath or chamber of any sort. By simply opening the hand slightly for observation when inverting the tube, one may note the end point without changing

the temperature or disturbing the tube. The tube should be gently inverted every thirty seconds, the time when the column ceases to move being noted. Jarring and shaking tend to prolong the clotting time and should therefore be avoided.

MORRIS H. KAHN, M.D.

Guthrie, C. G., and Huck, J. G.: On the Existence of More Than Four Isoagglutinin Groups in Human Blood. *Bull. Johns Hopkins Hosp., Balt.*, 1923, xxxiv, 38, 80, 128.

This interesting and important study of the reactions between the bloods of different persons was begun in connection with the study of the blood of a patient (C. T.) with sickle-cell anæmia, concerning the type of whose blood there was some doubt.

When the patient's red cells were matched with fresh serum from Groups II and III, they were agglutinated by the first and not by the second, indicating that she belonged to Group III. However, when her serum was matched with Group II cells, and her cells with Group II serum, there was no agglutination in the first instance, indicating that she belonged to Group I.

Repeated tests of one patient's blood with known members of the four groups showed that her serum acted as the serum of Group I, i.e., it did not agglutinate the cells of any of the other groups, but that her cells behaved as those in Group III, i.e., were agglutinated by the serum of Groups II and IV. Cross-agglutination tests with the blood of fifty-nine different persons during a period of three months gave similar results.

It was found further that the blood of the patient's brother, a married sister, and one of the married sister's four children acted like the patient's blood. In other words, four persons belonging to the same family were found whose red cells acted like those of persons belonging to Group III, and whose serum acted like that of persons of Group I.

Although the patient's serum repeatedly failed to agglutinate the cells of members of Group II, a patient (D. J.) considered as a typical member of Group II was eventually found whose red cells were agglutinated by C. T.'s serum, not only once, but repeatedly, over a period of two months. Further, among 142 hospital patients thirteen were found whose blood acted like that of members of Group II, except that their red cells, like those of D. J., were agglutinated by C. T.'s serum.

The blood formulæ of the four groups and the formula of the blood of the patient (C. T.) are shown in Table I.

TABLE I.—BLOOD FORMULÆ OF THE FOUR GROUPS ACCORDING TO LANDSTEINER ET AL.

	Agglutinin in serum	Agglutigen in red cells
Group I.....	O	ab
Group II.....	A	b
Group III.....	B	a
Group IV.....	AB	o
C. T.....	O	a

Absorption experiments were then carried out as follows:

Washed red cells were added to different blood sera in order to absorb the agglutinins present. After two hours the specimens were centrifugalized and fresh, washed red cells added to the clear sera in order to determine whether any agglutinins were left. Table II illustrates the nature of these experiments:

TABLE II.—PROTOCOL OF EXPERIMENT 12

Tube No.	Serum	Absorbed with red blood cells	Subsequent agglutination with red cells				Result
56	Group IV (J. D.)	Group II (H.)	Group I (Y. O.)	Group II (H.)			+
57	(J. D.)	(H.)					0
58	(J. D.)	(H.)		Group II (D. J.)			+
59	(J. D.)	(H.)			Group III (L. K.)		+
60	(J. D.)	(H.)				C. T.	+

From such absorption experiments the authors conclude that there are at least three different agglutinins in human blood sera and three agglutinogens in human red cells instead of two agglutinins and two agglutinogens as has been believed heretofore. They show that with such a number of agglutinins and agglutinogens there are sixty-four possible combinations, of which twenty-seven may be regarded as biological possibilities. Of these twenty-seven possibilities they have found eight in the course of the present study, as follows:

	Agglutinin in serum	Agglutigen in red cells
Group I.....	O	ab
2 persons.....	O	a
Group II.....	A	b
D. J. and 15 others.....	A	bc
Group III.....	BC	a
Group IV.....	AB	o
Group IV.....	ABC	c
C. T. and niece.....	C	a

The authors believe that some of the remaining nineteen exist as well, and suggest that the apparent discrepancies and abnormal behavior of certain bloods reported by Jansky, Ottenberg, Brem, Hooker, Anderson, and others may be explained by the facts they have brought to light.

They suggest that some of the reactions observed following transfusion from a donor to a recipient supposedly of the same group may be due to failure to assign one or the other to the correct group because of the inherent limitations of the method now in general use for grouping unknown bloods.

From a practical standpoint the authors emphasize the importance of using fresh serum and cells in making the tests for blood grouping, rather than stock sera which may rapidly lose their agglutinative

power, and outline a method of determining the exact blood formula of prospective donors. The method suggested involves a considerable amount of careful laboratory work, but its importance must be admitted in view of the facts disclosed by the investigation here reported. SUMNER L. KOCH, M.D.

Giffin, H. Z., and Haines, S. F.: A Review of Professional Donors. *J. Am. M. Ass.*, 1923, lxxxi, 532.

A group of professional blood donors were studied in order to determine whether or not they were being permanently injured by repeated bleedings. They had made from one to thirty-five donations, usually of 500 c.cm. each. In the males no significant changes were found in the hæmoglobin, the erythrocyte or leucocyte counts, or the reticulated and differential white cell counts. Many of the females had a moderate secondary anæmia; in some cases this was out of proportion to the amount of blood withdrawn. Many donors felt better after the donations than before, and a gain in weight was a common occurrence (50 per cent of the series).

Blood volume studies made in the cases of five donors who had been used frequently showed no significant changes in the plasma and cell volumes. Seven donors with hypertension showed no permanent changes in the blood pressure. A slight increase in the blood pressure was a common finding in those who had had a normal blood pressure before they gave blood. Before donation, a history and complete physical examination are obtained and an inquiry is made into the social habits of the donor in all cases. Complete blood examinations and Wassermann tests are made frequently. S. F. HAINES, M.D.

Luney, F. W.: A Citrate Method of Blood Transfusion Devised to Minimize Post-Transfusion Reactions. *Canadian M. Ass. J.*, 1923, xliii, 589.

Dissatisfaction with the citrate method of transfusion has resulted largely from the reactions that may follow its use. These have been attributed to the manipulation of the blood, which brings it into contact with foreign bodies, agitation which cools it, and its exposure to bacterial contamination. Luney describes an apparatus designed to eliminate these disadvantages which consists essentially of two 1-liter bottles—one to serve as an original receptacle and container of 0.2 per cent citrated blood, and the other used for physiological saline solution—connected by a Y-shaped glass tube to a three-way glass stop-cock. By manipulating the stop-cock, the contents of Bottle A or B can be drawn into a syringe by adjusting artery clamps controlling the flow and then, by turning the stop-cock, the contents of the syringe may be passed through a tube and needle to the recipient. The blood and saline solution are kept at body temperature by placing the bottles in a basin of warm water.

The results obtained by the use of this apparatus indicate that post-transfusion reactions can be largely prevented by eliminating errors in technique.

WILLIAM A. HENDRICKS, M.D.

Carrington, G. L., and Lee, W. E.: Fatal Anaphylaxis Following Blood Transfusion. *Ann. Surg.*, 1923, lxxviii, 1.

In recent years blood transfusion has become an exceedingly important therapeutic measure. Reactions varying in severity occur after all methods of transfusion in general use at the present time. Whether they are more frequent and severe after the citrate method than after the transfusion of whole blood is still under discussion.

Explanation of the reactions following transfusion are unsatisfactory. Factors of importance are:

1. Too rapid introduction of the blood, which may embarrass the circulation.
2. The use of new rubber tubing. The effect of such tubing may be prevented by soaking it in normal sodium hydroxide solution for six hours.
3. Incompatibility between the blood of the donor and the recipient. Under such circumstances the donor's corpuscles are hæmolyzed by the recipient's serum, or the recipient's corpuscles are hæmolyzed by the donor's serum, or the corpuscles of each are hæmolyzed by the serum of the other. Hæmolysis is preceded by agglutination and the latter is the more rapidly fatal of the two. A donor may be compatible for one transfusion and incompatible for one given subsequently.

In the opinion of Lewisohn, Drinker, and Keynes, the citrate method is as satisfactory as any.

The authors report a case of fatal acute anaphylactic shock occurring one hour after a first transfusion of 500 c.cm. of blood by the citrate method in a case of primary anæmia. The blood of the donor was carefully typed and cross-agglutinated with that of the recipient and there was no apparent defect in the technique. After the reaction had progressed for several hours, a specimen of venous blood showed no evidence of hæmolysis or agglutination, the urine presented no evidence of hæmolysis, and there was nothing to indicate infarction in any locality. There was no history of asthma or any other type of protein sensitization in either donor or recipient. The case appeared to be one of true acute anaphylaxis. CYRIL J. GLASPEL, M.D.

Penfield, W. G., and Teplitzky, D.: Prolonged Intravenous Infusion and the Clinical Determination of Venous Pressure. *Arch. Surg.*, 1923, vii, 111.

The authors have devised an apparatus for the prolonged intravenous administration of infusions in cases in which it is necessary to force fluids. This apparatus is particularly useful in the treatment of patients who are unable to take large quantities of fluid either by mouth or by rectum. The rate of flow and the temperature of the solution are controlled, and provision is made for the frequent determination of the venous pressure.

For the continuous infusion the authors recommend physiological salt solution or less than 10 per cent glucose solution. These should be prepared daily with fresh distilled water and should be used

within twenty-four hours. Great care should be taken in the sterilization of all apparatus and utensils employed as well as of the solution, in order that there may be no reaction. The tubing must be carefully handled as it is one of the most frequent causes of reaction. In at least two of the authors' cases with a severe reaction the use of new tubing not properly prepared was largely responsible. Three factors in the reaction are: (1) the temperature of the infusion fluid, (2) the hydrogen-ion concentration of the solution, and (3) the introduction of a foreign substance into the blood. A number of experiments have shown, however, that the temperature and hydrogen-ion concentration of the infusion solution may vary considerably without ill effect.

The infusion may be given from two to four hours without tiring the patient. In the authors' cases the rate of flow was from 800 to 1,500 c.cm. per hour. As much as 4,500 c.cm. has been given by this method in three or four hours. The venous pressure is considered the best index of the patient's condition and the effects of the infusion. A rising pressure is a sign of unfavorable reaction. The venous pressure is determined at the beginning of the infusion, at the end of the first and second half hours, and then every hour as long as the infusion is continued. In the majority of cases it remains practically unchanged, but in shock occasionally falls.

In cases with marked dehydration the administration of large quantities of physiological salt solution or Ringer's solution by this method is of great value. Glucose solution is not so satisfactory on account of its diuretic action. Woodyatt has shown that in the cases of normal persons 0.85 gm. of glucose per hour for each kilogram of weight can be given intravenously without the appearance of glucose in the urine. Anything above this amount will cause glycosuria. In the administration of a glucose infusion the output of urine usually reaches its maximum during the fourth hour.

HAROLD M. CAMP, M.D.

LYMPH VESSELS AND GLANDS

Mahon, G. D.: Elephantiasis: A Clinical Review and an Attempt at Experimental Reproduction.
Am. J. M. Sc., 1923, clxv, 875.

Elephantiasis is characterized by hypertrophy of the skin and subcutaneous tissue with vascular disturbances and resulting exudate. Bacterial cultures have been positive during the recurring, active, cutaneous reactions, but in a few cases there are no local inflammatory manifestations.

Block of the lymphatics by filaria, with subsequent œdema, does not explain the hypertrophy of the connective tissue so characteristic of elephantiasis.

The disease begins following lymphangitis, cellulitis, dermatitis, or some other local manifestation of a local infection, but sometimes its onset is insidious.

The disease is universal in distribution, but is epidemic only in tropical and subtropical regions.

The author studied thirty-three cases in the Mayo Clinic. The youngest patient was 12 years of age and the oldest 55. In a pathologic study it was noted that in cases of insidious onset without local reactions there was a well-marked lymphocytic infiltration in the deeper layers and the aponeurosis showed greater thickening with more change in the blood vessels of the deeper tissues than in the chorium. It was therefore concluded that in many cases of elephantiasis the inflammatory reaction necessary to produce cell proliferation is caused by low-grade organisms confined to the subcutaneous tissue and of insufficient virulence to produce local or constitutional reactions.

The experimental production of elephantiasis by dissecting out the lymphatics of the groin, ligating the femoral veins, and injecting organisms obtained from two cases of elephantiasis was attempted in twenty animals but the results were negative.

A. C. JOHNSON, M.D.

SURGICAL TECHNIQUE

OPERATIVE SURGERY AND TECHNIQUE; POSTOPERATIVE TREATMENT

Gernez, M. L.: Autoplasties with the Use of Skin Flaps with Long Pedicles (Autoplasties par lambeaux cutanés à longs pédicules). *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 411.

In extensive skin defects in which Thiersch grafts are unsuitable and skin sliding is impossible, a large flap may be cut at a distance, turned back over the defect, and subsequently replaced in its original position after utilization of the terminal portion as described by Moure.

The author reports the use of this method in the case of a soldier with a triangular-shaped loss of skin over the Achilles tendon, 7 cm. wide at the base and 7 cm. high, which was caused by a shell fragment. The callous ulcer had been present for six months and had prevented the wearing of a shoe. At operation the edge of the ulcer was trimmed to the healthy skin margin. A cutaneous flap with its pedicle over the lower tibia, which was cut by going up on the posterior surface of the leg to the popliteal space, was turned backward, and accurately sutured to the healthy skin edge of the ulcer over the Achilles tendon. Under the pedicle a compress was placed. The upper part of the wound on the calf from which the graft was lifted was sutured together by undermining and sliding the skin. The lower part was left open and treated daily with camphorated ether solution. On the twentieth day the end of the graft was divided and the remainder of the flap sutured back into its original bed. Three months later the leg was healed. The transplanted skin was soft and glided over the Achilles tendon. The scar was painless and the patient was able to wear low or high shoes.

WALTER C. BURKET, M.D.

Kromayer: The Combined Physico-Surgical Treatment of Keloid (Die kombinierte chirurgisch-physikalische Behandlung der Keloide). *Deutsche med. Wchnschr.*, 1923, xlix, 280.

The problem of the removal of large keloids will be solved when it is possible to remove them surgically so that healing will take place by first intention without the formation of granulations. This goal can be approached by "subepidermal" excision of the keloid tissue. With the cylinder knife which Kromayer introduced for minor dermatological surgery, multiple punches are made through the entire thickness of the keloid down to the subcutaneous fatty tissue and the punched-out cylinder of skin is picked up with the forceps and cut free from the subcutaneous tissues with the scissors. The diameter of the cylinder knives is at the most from 2 to 5 cm. and the punch-holes are made at a

distance of from 2 to 4 cm. The keloid is riddled like a sieve. With a small knife or scissors the remaining keloid tissue is then excised from the punch-holes subepidermally and without further damage to the epidermis. The epidermis, which is riddled but still retains its continuity, lies like a Thiersch flap upon the subcutaneous tissue. Healing is complete in six to eight days, with scab formation but without granulations.

A few days after the occurrence of healing, keloid tissue begins to form again and must be checked by the application of physical remedies to the young scar tissue while it is still unresistant. Later the blue light of the quartz lamp is applied. To obtain a strong inflammatory reaction which restrains the formation of keloid a fifteen-minute exposure is sufficient. The quartz light is preferable to radium and the roentgen rays because its effect begins one day after the exposure. About eight days after the disappearance of the inflammation due to the light, deep radium or roentgen-ray irradiation is applied. Usually radium is employed. The dose is regulated to produce a mild erythema. Because of the previous light-inflammation, the tissues are sensitized and the dose necessary to produce an erythema is somewhat smaller than usual. As a rule one treatment with light and radium is sufficient to remove definitely the tendency toward keloid formation. Only in cases of spontaneous or true keloid is it necessary to consider the possibility of a recurrence in making the prognosis.

WOERTMANN (Z).

Wohlgemuth, K.: Postoperative Tetanus: A Contribution to the Casuistics of Congenital Mesenteric Defects and Extensive Resections of the Small Intestine (Ueber Tetanus nach Operationen. Gleichzeitig ein Beitrag zur Kasuistik der angeborenen Mesenterialluecken und der ausgedehnten Duenn darmresektionen). *Arch. f. klin. Chir.*, 1923, cxxiii, 409.

The author reports three cases of fatal postoperative tetanus. In the first, resection of 80 cm. of the small intestine was done because of strangulation ileus. The tetanus developed on the fourth day. Autopsy showed defective suturing and peritonitis. Cultures of the bacillus and animal experiments were positive.

In the second case resection of the intestine was done because of intussusception. Tetanus developed on the twelfth day. Peritonitis was not found at autopsy and cultures were negative.

In the third case operation was performed for acute appendicitis in the early stages. Tetanus developed ten days after the patient's discharge from the hospital and was quickly fatal. No bacteriological cultures were made.

As postoperative tetanus occurs only after abdominal operations, the infection evidently has its origin in the intestine. The author therefore recommends prophylactic injections of antitoxin after every operation in which the intestine is injured or opened.

VORDERBRUEGGE (Z).

Klug, W. J.: Is Digipuratum a Prophylactic Agent Against Postoperative Pulmonary Complications (Digipurat als Prophylaxe gegen postoperative Lungenkomplikationen). *Deutsche Ztschr. f. Chir.*, 1923, clxxvii, 236.

In cases in which Klug administered 3 c.cm. of digipuratum intramuscularly as a routine postoperative measure he found that the incidence of pulmonary complications after local and general anesthesia remained unchanged. He was unable to determine that the digipuratum was effective as a prophylactic agent, but demonstrated clearly that it had a decided beneficial action after the development of postoperative pulmonary complications.

BANGE (Z).

ANTISEPTIC SURGERY; TREATMENT OF WOUNDS AND INFECTIONS

Underhill, F. P., Carrington, G. L., Kapsinow, R., and Pack, G. T., and Others: Blood Concentration Changes in Extensive Superficial Burns and Their Significance for Systemic Treatment. *Arch. Int. Med.*, 1923, xxxii, 31.

In extensive superficial burns a rapid concentration of the blood is usually associated with the outpouring of fluid onto the affected area or with increasing oedema of the part. When the concentration of the blood remains at 125 per cent of the normal for any length of time life is endangered.

The authors' study was made on twenty-one persons who were victims of a theater fire. The concentration of the blood was estimated by determining the hæmoglobin content by the method of Cohen and Smith. For convenience, the patients were divided into two groups, the moderately and the severely burned. It was apparent at once that the severely burned responded with a higher concentration of blood than the other group. The percentage increase is of value in indicating the patient's condition and the response to treatment. A chart prepared by the authors shows that there was a marked drop in the blood concentration associated with an increase in the urinary output in direct relation to the amount of fluid given. In these cases fluids were given by mouth, by rectum, subcutaneously, and intravenously as indicated.

The determination of the composition of the blood did not reveal any increase in the non-protein nitrogen such as might be expected because of the absorption of toxic material from the injured area, but in cases of high concentration of the blood there was a decrease in the sodium chloride content.

In extensive superficial burns a lowered systolic blood pressure was usually encountered. This may be a symptom of impending shock. When the pulse pressure is lowered the increased concentration of the blood interferes with the circulatory mechanism, though it may not be responsible for the lowered pulse pressure. In some of the cases with highly concentrated blood the pulse pressure was medium, while in others it was normal.

Changes in temperature depend for the most part upon the efficiency of the circulation rather than the blood concentration, but there is a marked association between blood concentration and the initial rise in temperature. In all cases of extensive superficial burns the forcing of fluids is necessary to restore the normal concentration of the blood as far as possible. There is then marked evidence of improvement, and such clinical manifestations as delirium, coma, hæmoglobinuria, gastro-intestinal disturbances, etc. are checked.

WILLIAM J. PICKETT, M.D.

Chudovszky, M.: The Treatment of Tetanus (Die Behandlung der Tetanusinfektion). *Orvosi hetil.*, 1923, lxxvii, 13.

The author reports on 102 cases of tetanus which were treated during a period of fourteen years. The symptoms of tetanus appeared in from one to seven days after the injury in sixty-four cases, in from seven to fourteen days in thirty cases, and in from fourteen to twenty-seven days in eight cases. Of the first group of patients twenty-four died and forty recovered. Of the second group, four died and twenty-six recovered. Of the third group, two died and six recovered.

During the World War the mortality in cases of tetanus was increased because of the complications associated with the severe injuries. In twenty-four war-injury cases the affected extremity was amputated. The histories reveal severe generalized tuberculosis, renal affections, necrosis of bone, streptomycoses, and intestinal affections which rendered the prognosis more unfavorable. In fifty of the cases reviewed the tetanus had been present for from two to nine days. Six of these were fatal cases in the second and third groups.

The treatment consisted of lumbar puncture and the injection of at first 50 and later 100 units of antitetanus serum into the lumbar sac. This was repeated daily until the difficulty in swallowing became less. As a rule a particularly favorable effect was observed within the first twenty-four hours. After the intraspinal injections a smaller dose was injected into the subcutaneous tissues. The symptomatic treatment consisted of injections of pilocarpine-morphine solution (2 : 1) every six to eight hours. Cardiac stimulants were given in accordance with the heart findings. Later a lukewarm bath and bromides were substituted for the pilocarpine-morphine solution.

VON LOBMAYER (Z)

PHYSICO-CHEMICAL METHODS IN SURGERY

MISCELLANEOUS

Mayo, W. J.: A Question of Size. *Ann. Surg.*, 1923, lxxviii, 140.

[This article is reproduced in its original form because of its importance and the difficulty of presenting it adequately in an abridged form.—EDITOR.]

When Brown, the English botanist, began the observation on physics which culminated in his written communications of 1827, he focused attention on a subject of enormous importance. The questions he raised a century ago are today perhaps the most important of all those before the scientific world. Brown noted, as man undoubtedly had noted from time immemorial, that when a pencil of bright light was thrown into a dark room, there were to be seen in the air certain rapidly moving particles of which there was no other physical evidence. On experimentation he found these dancing motes under conditions in which freedom from air disturbance of any kind had been obtained, and he further noted with the microscope the continual movement among minute particles suspended in a liquid. Because of his investigations the peculiar vibratory motions of these particles were called brownian movements. The great physicist, Dalton, was at this period working on the atomic theory and the constitution of the molecule, and in connection with his investigations the so-called brownian movements were even more happily designated "the dance of the molecules." The most important contribution to a proper understanding of these phenomena was that of Thomas Graham, Master of the Mint in London, who in 1861 published his painstaking observations which led to the first great description of colloid bodies. Graham's work was based largely on dialyses of colloid-sized substances through parchment paper. Tyndall called attention to the curious phenomenon occurring in the track of a luminous beam (called the Tyndall phenomenon), the colorings of which are the effect of sunlight on colloids in the air, and investigated the transparency and opacity of gases and vapors under radiant heat.

To those who have given little thought to the term "colloid," especially as it is used in medicine, the word appears to have some special meaning over and beyond that of size, but as a matter of fact, colloid refers only to size. Dividing matter into three great groups, there are first, those objects which can be seen directly with the eye, or with the eye aided by the microscope. The best microscope has a magnification which will reveal objects $\frac{1}{10}$ micron in diameter. Second, at the other extreme, there are the atom, the molecule, and the electron, which cannot

be seen. Third, those particles of matter lying between the two extremes in size ($\frac{1}{10}$ micron or $\frac{1}{250}$, 000 inch, and $\frac{1}{1,000}$ micron or $\frac{1}{25,000}$, 000 inch) are called colloids. In this third or colloid group, the particles are too small to be seen directly, but the colloid-sized particles are large enough to scatter a ray of light and therefore refract the light ray. The atom, the molecule, and the electron are too small to scatter the light ray and therefore do not refract it, although under experimental X-ray conditions the nucleus of the atom was demonstrated by Thompson and Ashton. Definite relationships can be shown, as evidenced in 1913 by the remarkable work of Henry Moseley, a young Englishman, whose death in the Gallipoli campaign was one of the irreparable losses of the Great War. Moseley analyzed the atom by the reflection of roentgen-rays and showed that there are ninety-two possible elements between hydrogen, the lightest, and uranium, the heaviest, all but four of which are now known.

The ultramicroscope which is used to catch the reflection of the colloid bodies gives no idea of the shape or the composition of the object itself, but by serving as a mirror and reflecting the light shows that such a body is actually present. The shortest ray of electro-magnetic vibration is the gamma ray from radium, $\frac{1}{1,000,000,000}$ inch. The next is the X-ray, which is about $\frac{1}{100,000,000}$ inch. It was with this extremely short X-ray that Moseley did his work. The wave length of the X-ray, which in this connection amounts to the same thing as size, is $\frac{1}{50,000}$ as great as the yellow light ray from the sun, and it is to this property that the X-ray owes its great penetrating power. The shortest light ray visible to the eye is approximately $\frac{1}{30,000}$ inch in length. The longest waves, hertzian, are the so-called wireless, which are from one-half mile to four or five miles in length, and experimentally have reached the length of 1,200 miles or more.

A most remarkable fact is that colloids, atoms, molecules, and electrons are not greatly affected by gravity and remain in rapid motion more or less permanently suspended in their medium, although all are affected by pressure, temperature, and atmospheric conditions. The evaporation of water is an illustration of this property. Water exists in the atmosphere, but under certain conditions does not greatly feel the pull of gravity. Under specific atmospheric conditions, however, as when the evaporated water rises to a height where the air is rarified and by greater coldness than exists at the point of evaporation, it gathers together in colloid form as clouds. For rainfall of $1\frac{1}{2}$ inches to an acre, 144 tons of colloid water practically unresponsive to the pull of gravity are suspended over each acre; if the

change from a dispersed to a fluid state takes place rapidly, the electrical energy on the surface of the colloidal particles is given off as an electrical disturbance, thunder and lightning.

Gortner and his pupils may influence the feeding of the world by their discoveries of the importance to plants of water in a bound form, and their demonstration that the effect of freezing and dryness on plant life depends on whether the water contained by the plant existed in a free form or a bound form. The difficulties which stood in the way of finding food plants which would withstand winter-killing were enormous. Years of patient waiting were often necessary before weather conditions made the demonstrations possible. When Gortner conceived the idea that water might exist in a bound state uninfluenced by ordinary conditions, atmospheric or thermic, he found that if plants which were not winter-killed were pressed in a hydraulic press, little or no juice was obtained, and that the amount of juice that could be expressed was directly related to the ability of the plant to withstand frost. He found that those plants which were not winter-killed contained little unbound water, that is, water in a free form, while those that were destroyed by freezing contained relatively a large amount of free water. Carrying his experiments out in the desert, he found conditions comparable as to drought; plants that could withstand dryness contained water, as did other plants, but in a bound form. Experiments in the compression of water, which is one of the most incompressible of all substances, have shown that the water in a film on colloid surfaces can be compressed to 75 per cent of its volume, and that under such conditions it behaves as a solid and does not evaporate at 300 degrees C. in a complete vacuum.

We know that a substance in solution, common salt for instance, exists although it can no longer be seen; when the water is evaporated the salt is again in evidence. If a pencil of light is thrown through such a solution it will not be diffused, showing that the light rays have not met bodies in the solution which are larger than the ray of light, and consequently the light is not reflected. It was Arrhenius, the Swedish scientist, who defined the electrolytic theory of solution, asserting that salts separate in water into positive and negative parts, and that such solutions are ionic. An ion is an unsatisfied electric charge. A chemical reaction is always accompanied by an exchange of electric charges between elements; the ion carries a definite charge and moves with the electric current. Colloids, atoms, and molecules may give off electrical energy under certain conditions.

One may well ask, where does the energy contained in the atom, molecule, and colloid reside? The Nobel prize in physics for 1922 was given Dr. Niels Bohr of Copenhagen who, about ten years ago, revealed his conception of the atomic system as a solar system in which the sun is represented by a nucleus of positive electricity and the planets by rapidly revolving negative electrons, and on this

theory calculated the wave lengths of light in each line of the spectrum. The positive core of the atom is exceedingly dense and heavy compared with the electron, in which the activity of negative electricity resides. The positive core might be said to be the electric center of gravity toward which the negative electrons constantly are pulled. Knowledge of electrical energy is based largely on an understanding of the negative electron which is only $1/1,800$ the density or weight of the positive hydrogen nucleus which is the smallest and lightest of known atoms of matter. It is because of its extremely small size and weight that the negative electron can move with such extraordinary rapidity through solid substances, especially copper and other electrical conductors.

The force that exists in the atom and molecule is inconceivable. Rutherford, the great physicist, says that he looks forward to the day in which energy for all our uses will be atomic. One of the scientists associated with the General Electric Company says that there is sufficient energy in a teaspoonful of water to drive the largest battleship across the ocean. The electric power in the molecule depends on the mass of the nucleus, that is, the number of positive charges in the mass and the number of negative electrons circulating around the positive nucleus, the charges in the more stable compounds going up in arithmetical progression of four, the octet being the most stable.

Most of the biochemical reactions in the body depend on physical states. Krogh, whose experimental studies of the blood capillaries won for him the Nobel prize in physiology in 1920, has added greatly to our knowledge of the mechanism of body nutrition. It had been believed that the capillaries were endothelial channels in the tissues, but Krogh has confirmed the observation that even the finest capillaries contain smooth muscle fibers through the walls of which oxygen and crystalloids, such as glucose, salts, and the amino acids, supply the body cells by diffusion. Diffusion depends on pressure.

Crystalloids are in a molecular state and penetrate the capillary walls everywhere because the pressure is greater within the arterial capillary than in the tissue space and greater in the tissue spaces than in the venous capillary which receives the waste products of oxidation. Unless there is great dilatation of the capillaries, which increases their permeability to larger bodies, the colloids normally do not penetrate the capillary walls except in the liver and gastro-intestinal tract. Histamin dilates the capillary walls so that its interspaces permit the escape of larger-sized particles such as colloids, and, as in shock, the experimental animal bleeds to death in its own tissues. The colloids of the blood are of different sizes; hence, there is variation in the permeability of the capillary wall to different colloids. The osmotic pressure, the state of dilatation of capillaries, and the size of the colloid molecule are the controlling factors. Increased work of any organ of the body causes dilatation of the capil-

laries. This power of dilatation and contraction lies in the non-striated muscle coat of the capillary. Variations in caliber of the capillaries may be brought about by the many influences which affect life processes and are to a great extent independent of nerve control. For instance, the effect of cold on the skin is to produce contraction of the arterial capillaries, resulting in blanching, which is followed by blueness due to dilatation and stasis of the venous capillaries distended with non-oxygenated blood. One can conceive that many substances said to be poisonous are poisonous because of their physical condition; certain tissue filters may become plugged by particles which of themselves are not poisonous in the chemical sense, but are attracted to certain localities and plug the normal inter-spaces, suspending internal respiration.

The point should be emphasized that, normally, the blood capillaries pick up only molecular substances or extremely fine subdivisions soluble in water. Generally speaking, it is the function of the lymphatics as absorbents to pick up material substances insoluble in water, such as bacteria, protozoa, and the cancer cell, which are too large to enter the blood capillaries. This absorption is through the agency of phagocytes which by diapedesis reach the lymphatics. The reaction in the lymph nodes represents the struggle of the gland to detoxicate these pathologic agents. The lymphatic channels lead from one gland to another, but in each gland they break up into lymphatic capillaries varying from 1 micron to 1 mm. and into endothelium-lined pockets and sinusoids before they are gathered again into the larger lymphatic channels for onward movement. These physical facts are of the greatest importance in relation to the infections which spread by way of the lymphatic system, such as tuberculosis, syphilis, and cancer.

Bacteria are electronegative, but the bacterial spore carries a positive charge. Evidence goes to show that endothelial cells which are phagocytes are electropositive. This research is incomplete, however, as an entire series of cells has not been worked out.

An idea of the minuteness of the constituents of a cell is gained from the following estimated analysis: A cell is composed of (1) protein, which is always colloid, (2) carbohydrates, which may be either crystalloid or colloid, (3) lipoids or fats, which are either colloids or emulsions, (4) salts, which are crystalloid, and (5) water, some part of which, large or small, depending on the physiological state of the cell, may be in colloidal form. As a specific instance, the composition of a liver cell, expressed in molecules, is estimated to be: protein, 53,000,000,000; fats and lipoids, 166,000,000,000; salts and other crystalloids, 2,900,000,000,000; and water, 225,000,000,000,000.

Perkin, working in the Royal College of London, discovered the dyes which Hofmann took back to Germany and which were the basic discoveries that gave rise to the explosives exploited in the World War. Abel and Rowntree in 1909, and Rowntree

and Geraghty in 1910, in working on the elimination of aniline dyes from the kidney, were led to the discovery of phenolsulphonaphthalein as an index to renal function. Evans has shown that dye elimination is purely a question of physics, that is, of the size of the dye particle which is permitted to pass the kidney filter. Bowman, for whom Bowman's capsule was named in 1842, made the first of that long line of studies on the malpighian bodies in relation to the system of tubules of the kidney, work continued later by Ludwig, Cushny, Marshall, Richards, Drinker, and others, which suggested that the essential action of the kidney is that of a filter. Sollman, seventeen years ago, in his perfusion experiments, found that the kidney of an animal removed from the body could be made to filter urine. Cushny, by his pharmacological investigations of the elimination of drugs from the kidney, developed most important data as to kidney filtration. While it is true that urea is excreted in small amounts in the saliva, through the skin, the mucous membranes of the intestine, etc., the natural urea filter is the kidney. In this connection it is most interesting to note that urea is one of the smallest of the molecules, being but slightly above atomic size, and that it is non-hydrophilic, that is, it does not absorb water. For this reason it is one of the most diffusible molecules and passes with great rapidity in and out of the tissues of the body. While urea is non-hydrophilic, its elimination through the kidney is closely associated with the water balance. Reduced urea output is accompanied by a corresponding increase in the watery constituents of the urine if a fair degree of renal function is maintained.

Sir William Crookes, who died in 1919, was the last of the great all-around physicists. Physics has grown so tremendously that each physicist of today can claim to have accurate knowledge of only a small part of the subject. Crookes, in his attempts to demonstrate the fourth state of matter, exhausted the air from a heavy glass bulb. When certain electric attachments were made, the bulb became filled with luminous matter and, as Crookes expressed it, "actually touched the borderland where matter and force seem to merge into one another." He named this luminous substance the "cathode ray," which was later shown to be composed of negative electrons, which is the fundamental conception of the X-ray. He pointed out also that when X-rays come in contact with solid matter they give rise to shadows, and that the cathode rays, when outside a magnetic field, always travel in a straight line. Roentgen was working with the Crookes tubes when he discovered the X-rays. The use of energy in the form of rays such as radium, X-ray, etc. is an example of biophysics in relation to medicine. Bayliss, speaking of chemistry and physics, says: "The boundaries between these two branches of science are rapidly becoming obliterated."

When we survey the modern field of research which goes under the general title of biophysics, the commercial inventions and developments that con-

cern physics in the sciences and arts, we get some idea of the importance of this work which has been neglected in its relation to medicine. Problems worked out in connection with industry, agriculture, and animal husbandry have raised scarcely a ripple in medicine. Perhaps we have been subject unconsciously to the theologic opinions which have recently been so broadly emphasized by a world-known orator who believes that man was created independently and not through evolution of pre-existing species, a view more flattering to our vanity than to our intelligence. One cannot but sympathize, however, with his recent vehement defense of the ape as not responsible for man.

Perhaps enough has been said to further the plea that biophysics be given a more important place in the medical school curriculum, and that some of the time of the overburdened students of medicine now occupied by chemistry be given to medical biophysics.

Castañó, C. A., and Gómez, J. F. M.: The Results of Diathermy (Diatermia. Los resultados obtenidos en el Instituto de cirugía). *Semana méd.*, 1923, xxx, 893.

The authors have tried diathermy in numerous conditions, including gonorrhœal arthritis, rheumatic arthritis, joint injuries, neuritis, abdominal

adhesions, chronic pericolicitis, persistent constipation, mucomembranous colitis, orchitis, prostatitis, salpingitis, oöphoritis, and pelviperitonitis. A review of their cases, which number more than 100, shows that the method sometimes gives excellent results and sometimes causes no improvement. The results were better in abdominal and gynecological diseases than in articular conditions. The majority of the cases of pain due to cicatricial bands or post-operative adhesions showed marked improvement, and some of them were cured. In cases of fully formed pericolic membranes, however, there was little or no improvement. Chronic constipation was often relieved considerably by diathermy when other treatment had failed. Traumatic and infectious arthritis were also benefited, but arthritis deformans was not.

Very satisfactory results were obtained in diseases of the male genital organs. In certain cases of gonorrhœal urethritis diathermy was the only treatment that put an end to the infection.

The method is contra-indicated in acute abdominal, pelvic, and articular conditions, and in menorrhagia and utero-ovarian congestion.

As a rule the application is continued for thirty minutes, but in gynecological infections and gonorrhœal urethritis it is more prolonged.

W. A. BRENNAN.

MISCELLANEOUS

CLINICAL ENTITIES—GENERAL PHYSIOLOGICAL CONDITIONS

Mayo, W. J.: *The Septic Factor in the Three Great Plagues*. *Canadian M. Ass. J.*, 1923, xiii, 549.

A grateful world has recently celebrated the one-hundredth anniversary of the birth of Pasteur, whose contributions to the welfare of the human race were probably greater than those of any other man.

The conviction that bacteria are more resistant than animal organisms to specific poisons which might select the bacteria without harm to the animal cell is undoubtedly true, although recent experiments in chemotherapy have shown that there are certain poisons which will select the parasite rather than the host. For the animal parasites, great and small, specific poisons have been found: quinine for the plasmodium of malaria, emetin for the amoeba of dysentery, thymol for hookworm, and male fern for tapeworm. When the malignant process is once set in motion, the abnormal, immature protective cell itself becomes the specific destructive agent. The carcinoma cell, regardless of causation, becomes as specific an agent of infection to the afflicted individual as any form of microbic organism and reproduces in each new locality of carcinoma infection the morphology of its origin.

The three great plagues of mankind are tuberculosis, syphilis, and carcinoma, manifestations of the bacterium, spirochæte, and the parasitic cancer cell. Of the many features these three infections have in common, the most important is their relation to the lymphatics. We are just beginning to realize the close relation of biophysics to the physiological processes of the body. It has been shown by Hering and MacNaughton that the lymphatics are a closed system of absorbents, their function being to pick up material insoluble in water and too large to enter the capillaries. Bacteria are too large to pass through the capillary interspaces and are therefore picked up by the endothelial cells which become phagocytic and by diapedesis enter the lymphatics where an attempt is made to destroy or sterilize the organisms. The resistance developed by the lymphatics varies in different persons and with different forms of infection. The latent phase of these contained organisms, the bacilli of tuberculosis, spirochætes, and the carcinoma cell, may be prolonged, resulting in renewed activity after many years, due to a breaking down of the lymphatic barriers from injury or intercurrent disease.

The reactions of the great infections, one on another, when in combination, which occurs not infrequently, are disastrous, especially if sepsis co-exists. According to Corner, the unclear are more likely to have prominent display of primary and

secondary syphilitic lesions with consequent early diagnosis and the advantages of early treatment. In carcinoma of the internal organs the disease may progress with little or no pain because of the absence of sepsis, in marked contrast with the open septic conditions of external carcinoma.

TUBERCULOSIS

The septic factor in tuberculosis is the most important factor. Tuberculosis itself seldom kills unless the products of the tuberculous infection are confined in a bony box and produce injurious pressure, as in the brain. Other parts of the body, the thorax, peritoneal cavity, and the soft parts generally, yield to pressure; this gives time for development of local resistance and generalized immunity.

SYPHILIS

The death rate in cases of syphilis following two years of treatment is nearly twice the normal. It is possible, or even probable, that there is a certain specificity in strains of spirochætes which causes attack on the nervous system in one case and in another affects the external portions of the body. On the other hand, in the location and progress of syphilis the individual soil may vary and the spirochætes be the same. Negroes seldom develop syphilis of the nervous system, but suffer to a far greater extent than the white race from its vascular manifestations in the heart, aortic aneurism, etc. It is probable that there are in the body certain other tissues in which the spirochætes may remain latent indefinitely without manifestations. The enlarged lymph nodes may restrain the advance of the spirochætes and encapsulate them so as indefinitely to prevent evidence of their presence. In certain cases of intractable syphilis with splenomegaly, in which anæmia is a prominent symptom, prolonged treatment sometimes fails to arrest the disease. Its progress is quickly arrested and the anæmia promptly overcome by removal of the greatly enlarged spleen in which spirochætes will be found.

The arsenic compounds are of great value, not only as curative agents, but also as public health agents, within six hours rendering carriers of the disease in a contagious form, such as chancres and mucous patches, temporarily incapable of infecting others. It is wise to use arsphenamin as soon as possible in known syphilis, but there has been a wide and unfortunate tendency to use it in doubtful cases of early syphilis. The position of the patient with doubtful early syphilis who has had arsphenamin treatment is most unfortunate, for he must carry the onus of suspected syphilis without knowing whether he ever really had it. Again, prolonged treatment of patients with doubtful syphilis, or

rather patients with doubtful Wassermann reactions, who have an associated urgent surgical condition such as carcinoma, leads to delay and loss of precious time if a cure is to be obtained.

CARCINOMA

Glandular involvement in carcinoma tells the story. While operative skill and technique are important, generally speaking, the results show that, without regard to the type of operation, a five-year cure occurs in 71 per cent of cases in which operation is performed for carcinoma before the glands are involved and in only 19 per cent in which it is performed after they are involved. Local operations cure local disease; massive operations fail when the local stage has passed.

While low operative mortality in carcinoma is important, extension of operability is also very important because it gives a larger number of patients a chance for cure.

The associated sepsis in cancer is the cause of much of the distress and hurries the patient to a fatal end. We all recognize the dangers of operating on the infected, so-called inflammatory carcinomata, such as those around the mouth and the cervix. The use of the knife in these cases is often followed by rapid recurrence and metastasis from infected venous thrombi. Cautery excision in these cases, followed later by plastic repair, is a step in the right direction. In many cases of infected carcinoma, radium and the roentgen ray are now used, and they have a similar effect without the risks of the tissue destruction and sloughing which accompanied the use of the cautery. There are many men who, with a small amount of radium, do little good and an enormous amount of harm. With good faith but poor judgment, they apply radium in cases in which operation should be performed early. Generally speaking, the use of radium means the parting of the ways. If radium is selected, one can seldom turn back and take the operative route with a good prospect of success.

Robertson, W. M. F.: Further Research on the Relation of Carcinoma to Infection. *Lancet*, 1923, ccv, 330.

The author obtained an anaerobic bacillus of the diphtheroid group from fifteen cases of carcinoma, corroborating the work of his father.

SAMUEL KAHN, M.D.

Cattell, M.: Studies in Experimental Traumatic Shock. VIII. The Influence of Morphine on the Blood Pressure and Alkali Reserve in Traumatic Shock. *Arch. Surg.*, 1923, vii, 96.

The literature on the effect of morphine upon the circulation dates back many years. Witkowski, who reviewed it up to 1877, stated that morphine does not affect the vagus or vasomotor centers, and its use is followed by a decrease in the blood pressure due to dilatation of the blood vessels, especially in the skin.

Macht found that morphine tends to increase the peristalsis and tonicity of organs.

All recent workers on the subject agree that in dogs and other mammals morphine slows the heart through a central influence on the vagus. In man there is only a slight decrease in the pulse and this is associated with decreased activity.

The author carried out a series of experiments, principally upon cats in which the blood pressure was artificially depressed to 60 mm. Hg. A number of the animals were given large doses of morphine and others were used for controls. In the former there was at first a slight depression of the blood pressure, but practically complete recovery within two hours. In the control animals the rise in blood pressure was slower and less marked.

Experiments were made also to determine the effect of morphine on the reduction of the alkali reserve which occurs in shock and low blood pressure. A cannula was placed in the pericardium to control the arterial pressure, which was reduced to 60 mm. Hg. A mercury manometer was connected with one carotid artery and in the other a cannula was inserted to obtain blood for the tests. Morphine was given in doses of from 10 to 20 mgm. per kilogram of body weight.

Under the influence of the morphine there was recovery of the alkali reserve. This was most marked when the morphine was used before the blood pressure was lowered. In several cases the alkali reserve was higher at the end of three hours than it was at the beginning of the experiment. A slight decrease in the amount of oxygen utilized by the animals given morphine was due probably in great measure to the decrease in respiration which occasionally was as great as 50 per cent. Higgins and Means found that in man under the influence of morphine the total gaseous metabolism shows no material change in oxygen consumption but a marked drop in carbon-dioxide elimination.

The author concludes that in the findings of his own investigations and in the literature on the subject there is no evidence that morphine has any deleterious action on the circulation or that its use is contra-indicated in shock.

HAROLD M. CAMP, M.D.

SURGICAL PATHOLOGY AND DIAGNOSIS

MacCarty, W. C.: The Cytologic Diagnosis of Neoplasms. *J. Am. M. Ass.*, 1923, lxxi, 519.

The methods of studying cells which have been employed heretofore have been handicapped by: (1) changes in the morphology due to metabolic disturbances in the immediate premortem phase of the disease; (2) postmortem changes occurring between the time of death and the fixation of the tissues; (3) the coagulation of the cell constituents by strong solutions for fixation; (4) abnormal treatment in the process of embedding; (5) the introduction of foreign pigments into the coagulated cell constituents; (6) the shrinkage coincident to dehydration, clearing,

and mounting; and (7) the variety of pictures resulting from the cutting of many different planes through coagulated opaque cells.

Fresh living cells of malignant neoplasms are perfect spheroidal or ovoidal nucleoli. The author believes they contain multiple polar mitotic figures very rarely, but never the so-called atypical irregular or asymmetrical mitotic figures described by von Hansemann and others as characteristic of cells of malignant neoplasms. Any asymmetrical mitotic figure he has seen may be just as well attributed to the disintegration of the cells or to cutting planes through perfectly regular figures. The cytoplasm and nucleoplasm are not reticular as described and shown in textbooks. They have the structure of a fine emulsion as described by Bayliss.

Malignant cells do not resemble morphologically any adult tissue cell in the body, despite the fact that they may have a similar general arrangement. They differ from ordinary regenerative cells in having a coarser or denser cellular wall, a denser cytoplasm, a denser nucleoplasm, a larger nucleolus. There is a greater variation in the extremes of size of the cells, nuclei, and nucleoli than in the normal regenerative cells of repair.

In many instances these cells cannot be differentiated from regenerative cells by 16-mm., 8-mm., or 4-mm. lenses; the stages of differentiation cannot be accurately recognized, and the relative size of the cellular component parts cannot be definitely determined. There is no standard of comparison with normal cells because histologists have not given high-power morphological standards for living human cells.

It is shown by case records that, given a few cells under the oil lens, a diagnosis can be made in borderline cases. This is made possible by the method of fixing and staining. A bit of tissue is placed as soon as removed on the stage of a freezing microtome, frozen, and cut from 5 to 15 microns thick. The section is first placed in physiological sodium chloride solution and unrolled, then dipped by means of a glass lifter into a strong solution of Unna's polychrome methylene blue from one to ten seconds, then transferred to, and washed in, physiological sodium chloride solution, then transferred to Brun's glucose, and then almost immediately drawn up on a slide and studied. If such preparation is properly made, the nucleolus is the only part of the regenerative and neoplastic cells which stains. The differentiation between regenerative cells, partially or completely differentiated cells, and the undiffer-

entiated cells of malignant neoplasms may be made, provided the examiner is familiar with the high-power morphology of normal adult cells of the differentiated tissues of the human body and with the normal phases of differentiation in the normal regeneration of tissues. W. McK. CRAIG, M.D.

MEDICAL JURISPRUDENCE

Responsibility of the Surgeon in the After-Care of Fractured Bones. *Huber vs. Hamley*, 210 *Pac. Rep.*, p. 769.

This case was reviewed by the Supreme Court of the State of Washington entirely on instructions given by the lower court to the jury. Huber sued the physicians claiming they negligently reduced a fracture of his right arm and negligently treated the fracture after the reduction. A judgment rendered in favor of the physicians was appealed by Huber who claimed error in the instructions given to the jury.

The Supreme Court approved the following instruction: "You are instructed that where a physician undertakes the treatment of a patient, not only must be used reasonable but ordinary skill and care in said treatment at the time he takes charge of said case, but also must be used ordinary skill and care in the subsequent treatment of the case, and it is his duty to give the patient such attention after the first examination or reduction of the fracture as ordinary physicians and surgeons possessing ordinary skill and intelligence, practicing in the same general locality, would deem necessary in a similar case, and if you find from the evidence that the defendants attempt to reduce the fractured radius for said plaintiff, but did not thereafter use reasonable care and skill in the subsequent treatment of said fractured bone, or such care as is imposed upon physicians holding themselves out as physicians and surgeons possessing the ordinary knowledge and skill of the physicians and surgeons located and practicing their profession in the same general locality, and if you further find from the evidence that because of such failure to use reasonable care and skill in the original treatment or subsequent treatment of the injured arm, the plaintiff was permanently injured or suffered pain, injury, and damage, then you will find for the plaintiff in such sum as you deem just and proper."

Several other instructions the Supreme Court held erroneous. Accordingly, a new trial was granted.

WILLIAM E. MOONEY.

BIBLIOGRAPHY *of* CURRENT LITERATURE

NOTE.—THE BOLD FACE FIGURES IN BRACKETS AT THE RIGHT OF A REFERENCE INDICATE THE PAGE OF THIS ISSUE ON WHICH AN ABSTRACT OF THE ARTICLE REFERRED TO MAY BE FOUND.

SURGERY OF THE HEAD AND NECK

Head

Injuries of the head. D. M. CROSSON. *Internat. J. Med. & Surg.*, 1923, xxxvi, 344.

The treatment of traumatic defects of the skull. D. DUFF. *Glasgow M. J.*, 1923, n.s. xviii, 65.

Presentation of a case four years after operation for a large subdural cyst of the frontal bone. W. B. SHEMLEY, JR. *Laryngoscope*, 1923, xxxiii, 575.

Mixed tumors of the parotid gland. GATEWOOD. *Surg. Clin. N. Am.*, 1923, iii, 963.

Osteosarcoma of the superior maxilla. HARRIS. *Laryngoscope*, 1923, xxxiii, 651.

Ununited fracture of the lower jaw. F. H. ALBEE. *Surg. Clin. N. Am.*, 1923, iii, 301. [529]

Evolution of a salivary calculus during twenty-eight years. G. ROUHIER. *Bull. et mém. Soc. anat. de Par.*, 1923, xciii, 414.

Salivary calculus; with report of a case. A. W. HAMMER. *Am. J. Surg.*, 1923, xxxvii, 208.

Report of a case of traumatic epithelioma of the lip. C. J. BROEMAN. *Cincinnati J. M.*, 1923, iv, 302.

Eye

Extensive involvement of the ocular muscles due to focal infection of the teeth. L. W. DEICHLER. *N. York M. J. & Med. Rec.*, 1923, cxviii, 163.

Serous tenonitis. W. L. BENEDICT and M. S. KNIGHT. *Am. J. Ophth.*, 1923, 3 s. vii, 656.

Routine procedure in eyeball affections. R. CALDWELL. *South. M. J.*, 1923, xvi, 623.

Foreign body in the eye. J. J. WYNN. *Kentucky M. J.*, 1923, xxi, 401.

Report of the committee on the computation of ocular disability resulting from industrial injury or disease. A. C. SNELL. *N. York State J. M.*, 1923, xxiii, 343.

Corneal injuries in industrial occupations. F. ALLPORT. *Illinois M. J.*, 1923, xlv, 128. [530]

Corneal ulcer in a diabetic, case report. L. K. BALDAUF. *Kentucky M. J.*, 1923, xxi, 408.

Vitreous membranes upon the iris with adherent leucoma of the cornea. Y. YOSHIDA. *Am. J. Ophth.*, 1923, 3 s. vi, 636.

Common eye conditions met with in general practice. P. V. MIKELL. *J. South Carolina M. Ass.*, 1923, xix, 556.

The growing importance of mapping fields of vision. W. E. DRIVER. *Virginia M. Month.*, 1923, 1, 203. [530]

The value of perimetric studies in visual defects. A. B. DYKMAN. *Northwest Med.*, 1923, xxii, 287.

Headaches with reference to some phases of refraction. M. F. MEYER. *N. Orleans M. & S. J.*, 1923, lxxvi, 61.

Heterophoria and astigmatism charts. L. W. FOX. *Am. J. Ophth.*, 1923, 3 s. vii, 684.

The effect of the increase of intensity of illumination on acuity and the intensity of illumination of test charts. C. E. FERREE and G. RAND. *Am. J. Ophth.*, 1923, 3 s. vii, 672.

The variations in normal visual acuity in relation to the retinal cones. A. COWAN. *Am. J. Ophth.*, 1923, 3 s. vii, 676.

Meter measure for retinoscopy. W. W. GOLDNAMER. *Am. J. Ophth.*, 1923, 3 s. vii, 685.

Some eye symptoms in encephalitis lethargica. J. W. STERLING. *Canadian M. Ass. J.*, 1923, xiii, 577.

The surgical anatomy of the lachrymal sac. J. H. BAILEY. *Am. J. Ophth.*, 1923, 3 s. vii, 665. [530]

Dacryo-adenitis following bronchopneumonia. H. McI. MORTON. *Am. J. Ophth.*, 1923, 3 s. vii, 682.

Drainage of the eyes. G. W. SPOHN. *J. Indiana State M. Ass.*, 1923, xvi, 250.

The conservation of vision in incipient cataract. J. W. WRIGHT. *Ohio State M. J.*, 1923, xix, 582.

Slit-lamp studies of hernia of the vitreous: its relation to cataract operations. L. C. PETER. *Am. J. Ophth.*, 1923, 3 s. vii, 644. [530]

A series of 100 cases of cataract removed under a sub-conjunctival bridge. C. KILLICK. *Brit. J. Ophth.*, 1923, vii, 320. [531]

Eye shield to prevent delirium following senile cataract operation. L. M. GURLEY. *Am. J. Ophth.*, 1923, 3 s. vii, 679.

Local anæsthesia an adjuvant in ocular therapeutics: is the process of absorption under nerve control? J. A. LIPPINCOTT. *Am. J. Ophth.*, 1923, 3 s. vii, 631. [531]

The bactericidal power of argyrol. R. C. CHENEY. *Am. J. Ophth.*, 1923, 3 s. vii, 648. [531]

Glaucoma. A. B. BRUNER. *Ohio State M. J.*, 1923, xix, 578.

Disease of retinal vessels and the early signs of arteriosclerosis in the eye. H. GRIMSDALE. *Med. Press*, 1923, n.s. cxvi, 112. [531]

The effect of blood transfusion on the retinitis of pernicious anæmia. H. L. GOSS. *Am. J. Ophth.*, 1923, 3 s. vii, 661. [532]

Ear

Physical measurements of minimum audibility. J. P. MINTON and J. G. WILSON. *J. Laryngol. & Otol.*, 1923, xxxviii, 405.

An instrument for assisting the deaf. W. M. MOLLISON. *Proc. Roy. Soc. Med., Lond.*, 1923, xvi, Sect. Otol., 51.

The presentation of a theory explaining a phase of tinnitus aurium. O. A. LOTHROP. *Laryngoscope*, 1923, xxxiii, 582.

The causes and prevention of otological conditions following swimming and diving. H. M. TAYLOR. *J. Am. M. Ass.*, 1923, lxxxi, 349.

Epidemic cerebrospinal meningitis associated with acute suppuration of the middle ear. F. SYDENHAM and D. MCKENZIE. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Otol., 51.

Otitic pterygo-maxillary abscess induced by thrombophlebitis of the jugular bulb. D. MCKENZIE. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Otol., 53.

A case of vertigo cured by opening the external semicircular canal. W. M. MOLLISON. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Otol., 60. [532]

A report of a case of chronic mastoiditis with extensive pathology; operation; recovery. F. M. SHOOK. *Laryngoscope*, 1923, xxxiii, 615.

A study of the mechanism of pain as seen in otological cases. L. HUBERT. *Laryngoscope*, 1923, xxxiii, 596. [532]

Nose

Deformities of the nose. F. E. LOCY. *U. S. Naval M. Bull.*, 1923, xix, 152.

A foreign body in the nares. C. B. CAMERER. *U. S. Naval M. Bull.*, 1923, xix, 168.

Foreign bodies in the nasal fossæ. L. ACEÑA and M. ACEÑA. *Med. Ibera*, 1923, vii, 85.

An unusual nasal polyp. P. M. ALBRIGHT. *U. S. Naval M. Bull.*, 1923, xix, 169.

A case of fibroma of the nose. L. POWELL. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Laryngol., 66.

Fibrosarcoma of the nasopharynx treated by operation and radium. D. MACPHERSON. *Laryngoscope*, 1923, xxxiii, 653. [532]

A case of epithelioma of the vestibule of the nose after treatment by radium. J. DUNDAS-GRANT. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Laryngol., 65.

Septal deviations. H. HAYS. *Med. Times*, 1923, li, 198.

The significance of pneumatization of the middle turbinate; with histological considerations. *Laryngoscope*, 1923, xxxiii, 565.

Cerebrospinal rhinorrhœa, with the report of a case. J. E. LOFTUS. *Laryngoscope*, 1923, xxxiii, 617. [532]

The diagnosis and treatment of nasal sinus disease, with case reports. W. MCWHORTER. *J. South Carolina M. Ass.*, 1923, xix, 560.

The management of acute sinus infections. J. C. TUCKER. *Nebraska State M. J.*, 1923, viii, 287.

Streptococcus hæmolyticus infection of the nose, accessory sinuses, and mastoid cells. J. C. BOONE. *J. Indiana State M. Ass.*, 1923, xvi, 249.

Dental surgery of the maxillary antrum. MUELLER. *Deutsche Monatsschr. f. Zahnheilk.*, 1923, xli, 289.

A case of maxillary sinus in a child, with a fatal issue. J. A. MORGAN. *Laryngoscope*, 1923, xxxiii, 614.

Mouth

The surgery of harelip and cleft-palate deformities. J. W. GIBBON. *South. M. & S.*, 1923, lxxxv, 355. [533]

The cause and effect of malocclusion of the teeth. L. M. WAUGH. *N. York M. J. & Med. Rec.*, 1923, cxviii, 142.

Dental diagnosis. W. G. THOMPSON. *N. York M. J. & Med. Rec.*, 1923, cxviii, 138.

Health, sickness, and death as related to dental infections. G. OSGOOD. *N. York M. J. & Med. Rec.*, 1923, cxviii, 145.

Oral sepsis and its relation to diseases of the eye, ear, nose, and throat. L. R. CAHN. *N. York M. J. & Med. Rec.*, 1923, cxviii, 168.

The prevalence of oral disease and its insidious effect upon the general health. B. B. MACHAT. *N. York M. J. & Med. Rec.*, 1923, cxviii, 165.

Gastric hyperacidity as an etiological factor in pyorrhœa alveolaris. J. I. TYREE. *J. Missouri State M. Ass.*, 1923, xx, 281.

Some observations on the histology, physiology, and pathology of the dental pulp. A. HOPEWELL-SMITH. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Odont., 58.

The present status of the pulp and root canal problem. M. L. RHEIN. *N. York M. J. & Med. Rec.*, 1923, cxviii, 148. [533]

Two odontomes. A. HOPEWELL-SMITH. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Odont., 55.

Oral infection by Vincent's organisms. P. R. STILLMAN and J. O. MCCALL. *N. York M. J. & Med. Rec.*, 1923, cxviii, 155.

Radium emanation ampoules in the treatment of cancer of the tongue. F. E. SIMPSON. *Illinois M. J.*, 1923, xlv, 139.

Report of a case of carcinoma of the hard and soft palate, the left anterior pillar, and the tonsil. C. J. BROEMAN. *Cincinnati J. M.*, 1923, iv, 303.

Throat

Is our present attitude toward the tonsil justifiable? D. T. ATKINSON. *Internat. J. Med. & Surg.*, 1923, xxxvi, 336.

Prophylactic vaccination against acute tonsillitis. A. L. BLOOMFIELD and A. R. FELTY. *Bull. Johns Hopkins Hosp.*, Balt., 1923, xxxiv, 251.

The relation between chronic tonsillitis and acute kidney infections. D. L. SMITH and C. W. BAILEY. *Arch. Pediat.*, 1923, xl, 525.

Ulceration of the left tonsil: a case for diagnosis. H. B. TAWSE. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Laryngol., 70.

A case of sarcoma of the tonsillar region treated with the X-rays after partial removal. J. DUNDAS-GRANT and D. MCKENZIE. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Laryngol., 69.

The use of tissue juice in tonsillectomy. L. RICHARD. *Boston M. & S. J.*, 1923, clxxxix, 203.

The Waring suction tonsillectomy. J. B. H. WARING. *Laryngoscope*, 1923, xxxiii, 587; *Ann. Otol., Rhinol. & Laryngol.*, 1923, xxxii, 913.

Congenital obstruction of the larynx and pharynx. G. B. NEW. *J. Am. M. Ass.*, 1923, lxxxi, 363. [533]

Experiences in intubation: the false passage. M. HOHLFELD. *Jahrb. f. Kinderheilk.*, 1923, ci, 349.

Two cases of paralysis of the left vocal cord and the left half of the palate. J. DUNDAS-GRANT. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Laryngol., 68.

Healed tuberculosis of the lungs and larynx. St. C. THOMSON. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Laryngol., 64.

Tuberculosis of the larynx cured seven years ago by silence and the galvanocautery. St. C. THOMSON. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Laryngol., 64.

A specimen of a large cyst of the orifice of the larynx arising from the aryteno-epiglottidean fold. E. D. D. DAVIS and S. G. SHATTOCK. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Laryngol., 70.

A laryngeal case apparently of epithelioma (possibly syphilis) completely healed and arrested under X-ray treatment without operation. St. C. THOMSON. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Laryngol., 60. [533]

Report of a case of carcinoma of the larynx treated by laryngofissure. H. S. BRKETT. *Laryngoscope*, 1923, xxxiii, 609.

Two cases of laryngofissure for intrinsic cancer of the larynx. St. C. THOMSON. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Laryngol., 59.

Neck

Hæmangioma involving more than half of the neck in a baby 4 days old, treated successfully with radium. C. J. BROEMAN. *Cincinnati J. M.*, 1923, iv, 304.

A thyrohyoid cyst from a prolongation of the thyroid. G. BOUZOM. *J. de chir.*, 1923, xxi, 561.

Notes on basal metabolism. I. A modified clinical method of determination. II. A simplified data card for clinical determination. III. Errors of clinical determination. IV. The selection of normal standards. V. Tables of values of Dreyer's formulæ. W. H. STONER. *Boston M. & S. J.*, 1923, clxxxix, 193, 195, 232, 236, 239.

Determination of the standard (basal) metabolism of patients by a recording apparatus. A. KROGH. *Boston M. & S. J.*, 1923, clxxxix, 313.

Report of a comparative study of the basal metabolism in normal men. F. G. HOBSON. *Quart. J. Med.*, 1923, xvi, 363. [534]

Preliminary report on the Kottmann reaction in children, with a note on the treatment of chorea with thyroid. J. D. LYTLE and L. P. SUTTON. *Am. J. Dis. Child.*, 1923, xxvi, 179.

Hypothyroidism. A. M. SNELL. *Minnesota Med.*, 1923, vi, 503.

Hyperthyroidism. B. W. BAYLESS. *Kentucky M. J.*, 1923, xxi, 409.

Physico-chemical investigations of thyroid problems. F. STARLINGER. *Mitt. a. d. Grenzgeb. d. Med. u. Chir.*, 1923, xxxvi, 334. [534]

A survey of thyroid enlargement among the children of Grand Rapids. T. REED and H. T. CLAY. *J. Michigan State M. Soc.*, 1923, xxii, 323. [534]

The prevention of endemic goiter. H. S. KUHN. *Therap. Gaz.*, 1923, 3 s. xxxix, 533.

The prevention of goiter and its recurrence. H. EGGENBERGER. *Schweiz. med. Wchnschr.*, 1923, liii, 245. [535]

The nature and treatment of interstitial goiter. A. E. HERTZLER. *Nebraska State M. J.*, 1923, viii, 261. [535]

Graves' disease and thyroid instability in the cow, and its relation to ovarian disease. L. P. PUGH. *Proc. Roy. Soc. Med., Lond.*, 1923, xvi, Sect. Obst. & Gynæc., 92.

The heart in exophthalmic goiter and adenoma with hyperthyroidism, with a note on the pathology. F. A. WILLIUS, W. M. BOOTHBY, and L. B. WILSON. *Med. Clin. N. Am.*, 1923, vii, 189. [535]

Surgical indications in goiter. R. C. AUSTIN. *Ohio State M. J.*, 1923, xix, 557. [537]

The indications for the surgical treatment and prophylaxis of goiter. B. BREITNER. *Wien. klin. Wchnschr.*, 1923, xxxvi, 213. [538]

The end-results of surgery of the thyroid. J. DEJ. PEMBERTON. *Arch. Surg.*, 1923, vii, 37. [538]

Surgery of the thyroid and its mortality. C. H. MAYO and J. DEJ. PEMBERTON. *Ann. Surg.*, 1923, lxxviii, 146. [539]

The many-stage operation for goiter. M. B. TINKER. *Ann. Surg.*, 1923, lxxviii, 151.

Toxic thyroid with pathologic findings after treatment. R. E. LOUCKS. *J. Radiol.*, 1923, iv, 276.

SURGERY OF THE NERVOUS SYSTEM

Brain and Its Coverings; Cranial Nerves

Barany's sign of deviation in a case of lesion of the frontal region and the influence of stimulation of the frontal region upon provoked vestibular nystagmus. TORRIGIANI. *Sperimentale*, 1922, lxxxvi, 407. [540]

Hydrocephalus. C. E. LOCKE. *Bruxelles méd.*, 1923, iii, 476. [540]

The space-compensating function of the cerebrospinal fluid—its connection with cerebral lesions in epilepsy. W. E. DANDY. *Bull. Johns Hopkins Hosp., Balt.*, 1923, xxxiv, 245. [541]

The treatment of cortical epilepsy by injecting alcohol into the motor centers. S. L. KOLJUBAKIN. *Arch. f. klin. Chir.*, 1923, xxiv, 114. [541]

The function of the lobes of the hypophysis as indicated by replacement therapy with different portions of the ox gland. P. E. SMITH and I. P. SMITH. *Endocrinology*, 1923, vii, 579. [541]

The classification and treatment of hypophyseal disorders. J. L. TIERNEY. *Endocrinology*, 1923, vii, 536.

A contribution to the physiology of the pineal body. Y. IZAWA. *Am. J. M. Sc.*, 1923, clxvi, 185.

A case of agenesis of the corpus callosum. P. HECKER. *Bull. et mém. Soc. anat. de Par.*, 1923, xciii, 441.

Brain abscess due to otitic infection; right temporo-phenoidal abscess without clinical signs. T. H. JUST. *Proc. Roy. Soc. Med., Lond.*, 1923, xvi, Sect. Otol., 54. [541]

Epileptiform seizures subsequent to operation for temporo-phenoidal abscess. D. MCKENZIE. *Proc. Roy. Soc. Med., Lond.*, 1923, xvi, Sect. Otol., 52.

Section of an ependymal glioma growing from the floor of the fourth ventricle and simulating a cerebellar abscess in a case of bilateral chronic suppurative otitis media.

T. H. JUST. *Proc. Roy. Soc. Med., Lond.*, 1923, xvi, Sect. Otol., 62.

Encephalography. GABRIEL. *Fortschr. a. d. Geb. d. Roentgenstrahlen*, 1923, xxx, 65. [542]

Localization of brain tumors by cerebral pneumography. W. DANDY. *Am. J. Roentgenol.*, 1923, x, 610.

The diagnosis of brain tumor. W. G. SPILLER. *Atlantic M. J.*, 1923, xxvi, 723. [542]

The diagnosis and treatment of brain tumors. W. E. DANDY. *Atlantic M. J.*, 1923, xxvi, 726. [542]

Unusual findings in roentgenography of the head. C. G. SUTHERLAND. *Minnesota Med.*, 1923, vi, 473.

Endothelioma of the brain and meninges. E. WYLLYS ANDREWS. *Surg. Clin. N. Am.*, 1923, iii, 917.

Anatomo-clinical considerations on intracranial and traumatic subdural hæmorrhages in the adult. P. WERTHEIMER. *Rev. de chir., Par.*, 1923, xlii, 150. [542]

Glossopharyngeal neuralgia. J. B. DOYLE. *Med. Clin. N. Am.*, 1923, vii, 285. [543]

Acusticus tumors. F. M. R. WALSH. *J. Laryngol. & Otol.*, 1923, xxxviii, 419.

A case of acusticus tumor (right); operation by Sir Victor Horsley in 1912; recovery. F. J. CLEMINSON. *Proc. Roy. Soc. Med., Lond.*, 1923, xvi, Sect. Otol., 31. [543]

Specimen of brain and acusticus tumor. F. M. R. WALSH. *Proc. Roy. Soc. Med., Lond.*, 1923, xvi, Sect. Otol., 32. [543]

Acusticus tumor. F. M. R. WALSH. *Proc. Roy. Soc. Med., Lond.*, 1923, xvi, Sect. Otol., 32. [543]

The surgical treatment of eighth nerve tumors. W. TROTNER. *Proc. Roy. Soc. Med., Lond.*, 1923, Sect. Otol., 37. [543]

Clinical studies of vestibular and auditory tests in intracranial surgery. W. P. EAGLETON. *Laryngoscope*, 1923, xxxiii, 483. [544]

The treatment of contracture of the facial nerve by nerve anastomosis. M. ALURRALDE and C. T. ALLENDE. *Rev. Asoc. méd. argent.*, 1923, xxxvi, 259.

The morbid anatomy and drainage of otitic meningitis. E. D. D. DAVIS. *Proc. Roy. Soc. Med., Lond.*, 1923, xvi, Sect. Otol., 43. [544]

Sarcoma of the meninges causing a pseudo-Parkinsonian syndrome. BLOQUIER DE CLARET and ZÉLÉPOGLOU. *Bull. et mém. Soc. anat. de Par.*, 1923, xciii, 407.

Spinal Cord and Its Coverings

Radiographic localization of spinal lesions by Sicard's method. P. SARGENT. *Brit. M. J.*, 1923, ii, 174. [544]

Consideration of some surgical conditions of the spinal cord. J. A. CALDWELL. *Cincinnati J. M.*, 1923, iv, 274.

Peripheral Nerves

Report of a case of spastic hemiplegia. G. PERKINS. *Proc. Roy. Soc. Med., Lond.*, 1923, xvi, Sect. Study Dis. Child., 75.

A case of Erb's paralysis. G. PERKINS. *Proc. Roy. Soc. Med., Lond.*, 1923, xvi, Sect. Study of Dis. Child., 74.

A case of birth injury to the brachial plexus; all cords of the plexus originally involved; recovery of function of the outer and posterior cords; paresis now of the infraclavicular or Klumpke type. C. WORSTER-DROUGHT. *Proc. Roy. Soc. Med., Lond.*, 1923, xvi, Sect. Study Dis. Child., 73.

Drop wrist—traumatic and bilateral. E. M. ELLISON. *Boston M. & S. J.*, 1923, clxxxix, 309.

The treatment of sciatic neuralgia by epidural injection of magnesium sulphate. GAROFANO and LABIN. *Arch. méd. belges*, 1923, lxxvi, 473.

The treatment of trophic disturbances secondary to section of the sciatic nerve. HERTZ. *Lyon chir.*, 1923, xx, 328.

Neuromata, false neuromata, cicatrices of the nerves. M. TORTORA. *Ann. ital. di chir.*, 1923, ii, 600.

Operations for war injuries of peripheral nerves. H. SCHAPER. *Deutsche Ztschr. f. Chir.*, 1923, clxxix, 284.

Double union of one nerve trunk to another. P. MANASSE. *Arch. f. klin. Chir.*, 1922, cxx, 665. [545]

Discussion on the operative treatment of spastic paralysis. A. S. B. BANKART, T. H. OPENSHAW, G. RIDDOCH, E. M. LITTLE, and others. *Proc. Roy. Soc. Med., Lond.*, 1923, xvi, Sect. Orthop., 33. [546]

Sympathetic Nerves

The surgery of the sympathetic nervous system. F. BRUENIG. *Med. Klin.*, 1923, xix, 671.

Œdematous stump with trophic ulceration treated by peri-arterial sympathectomy. OUDARD and JEAN. *Lyon chir.*, 1923, xx, 336.

Miscellaneous

Organic diseases of the central nervous system and their relation to the previous operative removal of endocrine glands. A. WESTPHAL. *Klin. Wchnschr.*, 1923, ii, 1009.

Some unsolved problems in neurological surgery. E. SACHS. *Virginia M. Month.*, 1923, 1, 289.

A technique to reduce the incidence of headache following lumbar puncture in ambulatory patients, with a plea for more frequent examination of cerebrospinal fluid. H. M. GREENE. *Northwest Med.*, 1923, xxii, 240.

SURGERY OF THE CHEST

Chest Wall and Breast

Additional observations on the disease picture of subacute mastitis with the formation of nodules in the breasts. E. GLASS. *Deutsche Ztschr. f. Chir.*, 1923, clxxvii, 123. [547]

Parenchymatous hypertrophy of the breast. D. C. L. FITZWILLIAMS. *Lancet*, 1923, ccv, 218.

Tumors of the breast. F. E. BUNTS. *Ohio State M. J.*, 1923, xix, 561. [548]

Cancer of the breast. L. D. BULKLEY. *Am. J. Clin. Med.*, 1923, xxx, 556.

Carcinoma of the breast. S. O. BLACK. *South. M. & S.*, 1923, lxxxv, 401.

Trachea, Lungs, and Pleura

A foreign body removed from the trachea of a child aged 6 months. H. SMURTHWAITE. *Proc. Roy. Soc. Med., Lond.*, 1923, xvi, Sect. Laryngol., 66.

Foreign bodies in the lower respiratory tract. V. FAIRÉN GALLÁN. *Clin. y lab.*, 1923, ii, 119.

Some principles involved in the bronchoscopic removal of foreign bodies. F. J. BISHOP. *Atlantic M. J.*, 1923, xxvi, 750.

A compression operation for the treatment of unilateral pulmonary tuberculosis. A. J. OCHSNER and F. T. H'DOUBLER. *Surg. Clin. N. Am.*, 1923, iii, 941.

The mechanism of action of artificial pneumothorax on the basis of anatomopathological observations. F. PARODI. *Policlin.*, Rome, 1923, xxx, sez. prat., 489. [547]

Pulmonary abscess roentgenographically considered. W. H. STEWART. *J. Radiol.*, 1923, iv, 277. [548]

Sclerosis of the lung. LETULLE. *Bull. et mém. Soc. anat. de Par.*, 1923, xciii, 459.

Heart and Pericardium

Rupture of the heart. F. COSTE. *Bull. et mém. Soc. anat. de Par.*, 1923, xciii, 487.

Stab wound into the left ventricle of the heart. J. F. X. JONES. *J. Am. M. Ass.*, 1923, lxxxi, 476.

Cardiac resuscitation. HARTUNG. *Beitr. z. klin. Chir.*, 1923, cxxix, 423.

Bird's-eye view of suppurative pericarditis in childhood. H. APFEL. *Arch. Pediat.*, 1923, xl, 519.

Tuberculosis of the pericardium. W. E. WALLER. *Lancet*, 1923, ccv, 278.

Œsophagus and Mediastinum

Luetic obstruction of the œsophagus. F. B. McMAHON. *Surg., Gynec. & Obst.*, 1923, xxxvii, 141.

A study of a group of symptoms associated with a large thymus in infants and children. R. G. FREEMAN. *Arch. Pediat.*, 1923, xl, 456.

The surgical treatment of thymic asthma and the importance of the thymus in surgical infections. E. BIRCHER. *Deutsche Ztschr. f. Chir.*, 1922, clxxvi, 362. [548]

Malignant epithelial thymoma: report of a case, with necropsy. N. C. FOOT and H. HARRINGTON. *Am. J. Dis. Child.*, 1923, xxvi, 164.

SURGERY OF THE ABDOMEN

Abdominal Wall and Peritoneum

- Investigations in the neurology of the abdominal wall. G. SOEDERBERGH. Hygiea, Stockholm, 1923, lxxxv, 5.
 Operative ventral hernia. J. C. MASSON. Surg., Gynec. & Obst., 1923, xxxvii, 14. [549]
 Hernia through the conjoined tendon. F. S. MATHEWS. Ann. Surg., 1923, lxxviii, 300.
 Incarcerated obturator hernia. PUMPLUN. Med. Klin., 1923, xix, 795.
 The cure of acute purulent diffuse peritonitis by intraperitoneal injections of sulphuric ether. V. CACCINI. Policlin., Rome, 1923, xxx, sez. prat., 558, 590.

Gastro-Intestinal Tract

- The value of the glucose tolerance test in the diagnosis of malignant growths of the digestive tract. S. K. SIMON and J. H. SMITH, JR. South. M. J., 1923, xvi, 582.
 Postoperative hemorrhages of the gastro-intestinal tract. W. WAMBERSKI. Gynaekologia i Akuscherstwo, 1922, i.
 The effect of bilateral intrathoracic sympathectomy and splanchicotomy upon the motor function of the stomach. T. WATANABE. Fortschr. a. d. Geb. d. Roentgenstrahlen, 1923, xxx, 512.
 Acute total volvulus of the stomach. M. THOREK. J. Am. M. Ass., 1923, lxxxi, 636.
 Diagnosis of gastric disease. M. E. REHFUSS. Ann. Clin. Med., 1923, ii, 55. [549]
 Diseases of the stomach: modern methods of investigation. C. BOLTON. Brit. M. J., 1923, li, 269.
 Cardioplasty for cardiospasm. S. H. WATTS. Ann. Surg., 1923, lxxviii, 165. [550]
 An operation for the relief of cardiospasm. L. FREEMAN. Ann. Surg., 1923, lxxviii, 174. [550]
 Pylorospasm in childhood. M. GOLOB. Arch. pediat., 1923, xl, 535.
 The chemical pathology of pyloric occlusion in relation to tetany: a study of the chloride, carbon dioxide, and urea concentrations in the blood. H. A. MURRAY, JR. Arch. Surg., 1923, vii, 166. [550]
 Functional examination of the stomach. C. JIMÉNEZ DÍAZ. Rev. españ. de cirug., 1923, v, 259.
 A study of the ammonia present in the gastric contents following test meals. J. ROSENBLUM. J. Lab. & Clin. Med., 1923, viii, 755.
 Gastric and duodenal ulcers. C. USHER. J. Med. Ass. Georgia, 1923, xii, 309.
 Gastric and duodenal ulcer, with special reference to local anesthesia in operations. C. BECK. Surg. Clin. N. Am., 1923, iii, 1027.
 Hour-glass stomach. E. W. ANDREWS and E. ANDREWS. Surg. Clin. N. Am., 1923, iii, 911.
 Perforated gastric and duodenal ulcer. A. C. STOKES. Nebraska State M. J., 1923, viii, 267.
 Gastroscopic studies on the healing of gastric ulcer. R. SCHINDLER. Muenchen. med. Wchnschr., 1923, lxx, 421. [550]
 Three cases of perforation of the stomach by ulcer. CHARRIER. Bull. et mém. Soc. de chir. de Par., 1923, xlix, 494. [551]
 Two cases of perforation of the duodenum by ulcer. FERRARI. Bull. et mém. Soc. de chir. de Par., 1923, xlix, 494. [551]
 The use of the cautery in peptic ulcer. D. C. BALFOUR. Ann. Surg., 1923, lxxviii, 206. [551]

- The technique of wide gastro-enterostomy. J. PHILIPOWICZ. Zentralbl. f. Chir., 1923, l, 861.
 Gastro-jejuno-colic fistula resulting from a silk suture three years after gastro-enterostomy. J. PHILIPOWICZ. Zentralbl. f. Chir., 1923, l, 869.
 A technique for the resection of gastric and duodenal ulcers. E. S. JUDD and F. W. RANKIN. Surg., Gynec. & Obst., 1923, xxxvii, 216. [551]
 The formation of hemorrhagic erosions in the mucosa of the excluded pylorus. T. AOYAMA. Zentralbl. f. Chir., 1923, l, 252. [552]
 The early diagnosis of cancer of the stomach by means of gastric analysis. T. I. BENNETT. Brit. M. J., 1923, ii, 275.
 Ascaris obturation—ileus with perforation of the small intestine caused by ascarides at the site of serous sutures. K. JAROSCHKA. Deutsche Ztschr. f. Chir., 1923, clxxviii, 122.
 Blastocystis in intestinal inflammation, with a note on endolimax nana. K. M. LYNCH. J. Am. M. Ass., 1923, lxxxi, 522.
 Four cases of volvulus of the small intestine, with observations on the etiology. F. J. TEES. Canadian M. Ass. J., 1923, xiii, 400. [552]
 Intestinal intussusception. RAFAEL DE VEGA BARRERA. Arch. de med., cirug. y especial., 1923, xii, 193.
 Retrograde intussusception of the small intestine after gastro-enterostomy. H. DRUMMOND. Brit. J. Surg., 1923, xi, 79. [552]
 Bleeding external myomata of the small intestine. W. GOLDSCHMIDT. Deutsche Ztschr. f. Chir., 1923, clxxviii, 128.
 Intestinal surgery. H. H. KERR. J. Am. M. Ass., 1923, lxxxi, 641. [553]
 Intestinal clamp with detachable handle. L. DAVIS. Surg., Gynec. & Obst., 1923, xxxvii, 230.
 The technique of axial anastomosis of the alimentary canal. C. A. PANNETT. Proc. Roy. Soc. Med., Lond., 1923, xvi, Sect. Surg., 81. [553]
 A procedure to facilitate the execution of the Connell stitch. LUQUET. Presse méd., Par., 1923, xxxi, supp. 552. [554]
 Studies on the histology of intestinal suture and sero-saplasty. M. GARA and F. MANDL. Arch. f. klin. Chir., 1923, cxxiv, 419.
 Estimations of the amount of pancreatic enzymes in duodenal fluid by a modified Gautier's method. G. F. SPENCER. J. Lab. & Clin. Med., 1923, viii, 741.
 Intermittent duodenal obstruction in children. H. O. FOUCAR. Med. Clin. N. Am., 1923, vii, 81. [554]
 Duodenal drainage. MOREAU. Arch. méd. belges, 1923, lxxvi, 449.
 Duodenal diverticula, with report of a case of gangrenous diverticulitis. G. P. B. HUDDY. Lancet, 1923, ccv, 327. [554]
 The rationale of the X-ray signs in duodenal ulcer. C. D. ENFIELD. Kentucky M. J., 1923, xxi, 415.
 Cancer of the duodenum. M. A. MUCHARINSKI. Nowy Chir. Arch., 1923, ii, 586. [555]
 Resection of the duodenum. Ulcer of the papilla. K. KOCH. Rozhledy v. chir. a. gynaek., 1923, ii, 157. [555]
 Double intussusception of the upper jejunum. E. L. MOORHEAD and L. D. MOORHEAD. Surg. Clin. N. Am., 1923, iii, 1103.
 A case of traumatic perforation of the jejunum; operation; recovery. E. L. FYFFE. J. Roy. Army Med. Corps, Lond., 1923, xli, 129.

- Meckel's diverticulum as an etiological factor in intestinal obstruction; a report of three cases. J. A. JOHNSON. *Minnesota Med.*, 1923, vi, 479.
- Meckel's diverticulum and intestinal obstruction. H. L. FOSS. *J. Am. M. Ass.*, 1923, lxxxi, 99. [555]
- A case of ileocecal tuberculosis. BECKER. *Beitr. z. klin. Chir.*, 1923, cxxix, 451.
- Traumatic lesions of the intestine caused by non-penetrating blunt force. B. M. VANCE. *Arch. Surg.*, 1923, vii, 197. [555]
- The intestinal rate and the form of the fæces. F. L. BURNETT. *Am. J. Roentgenol.*, 1923, x, 599.
- Recent pharmacological studies in intestinal peristalsis. V. E. HENDERSON. *Canadian M. Ass. J.*, 1923, xiii, 560.
- The spastic colon. H. N. MACKECHNIE. *Surg. Clin. N. Am.*, 1923, iii, 1135.
- The treatment of spastic constipation. C. D. AARON. *Am. J. M. Sc.*, 1923, clxv, 816. [556]
- Ulcerative colitis. A. A. STRAUSS. *Surg. Clin. N. Am.*, 1923, iii, 1033. [556]
- Chronic ulcerative colitis and its treatment. W. HUGHSON. *Virginia M. Month.*, 1923, I, 304. [557]
- Duodenal enzymes in chronic ulcerative colitis. P. W. BROWN. *Med. Clin. N. Am.*, 1923, vii, 97. [557]
- Diverticulitis of the cæcum, with a report of three cases. R. W. FRENCH. *Boston M. & S. J.*, 1923, clxxxix, 307.
- Invagination of the caput coli of many years duration. J. G. SHERRILL. *Kentucky M. J.*, 1923, xxi, 436.
- Enterocystoma of the cæcum. G. LOTHEISEN. *Deutsche Ztschr. f. Chir.*, 1923, clxxxix, 394.
- Hernia of the vermiform appendix through Hesselbach's triangle. M. W. SNODGRASS. *Lancet*, 1923, ccv, 280.
- The significance of appendiceal stasis as demonstrated by the barium meal. W. A. EVANS. *J. Michigan State M. Soc.*, 1923, xxii, 334.
- Oxyuric appendiceal disease. M. BRAUCH. *Beitr. z. pathol. Anat.*, 1923, lxxi, 207.
- The fat reactions in appendicitis and cholecystitis. A. KOLODNY. *J. Iowa State M. Soc.*, 1923, xiii, 346. [557]
- Occlusion of the descending colon from pericolicity due to appendicitis. P. ROCHET and MALLET-GUY. *Presse méd., Par.*, 1923, xxxi, 627.
- Cystic appendicitis. POUCEL and CAUDIERE. *Gynéc. et obst.*, 1923, viii, 516.
- Carcinoma of the appendix, with report of one case. R. J. SHAFER. *Boston M. & S. J.*, 1923, clxxxix, 206.
- Acute sigmoiditis: perforation and general peritonitis following rectal injection. C. MACDONALD. *Med. J. Australia*, 1923, ii, 10. [557]
- A modification of Lambret's method of forming an iliac colostomy. I. HAYEM. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 414. [558]
- The treatment of rectal prolapse in children by the prone position. P. WIDOWITZ. *Muenchen. med. Wchnschr.*, 1923, lxx, 390. [558]
- Congenital stricture of the rectum in children. V. C. DAVID. *Surg. Clin. N. Am.*, 1923, iii, 1115.
- Congenital rectal stricture as the cause of infantile megacolon. V. C. DAVID. *Surg., Gynec. & Obst.*, 1923, xxxvii, 197.
- The importance of proctoscopic examination. L. A. BUTE. *Med. Clin. N. Am.*, 1923, vii, 113. [558]
- Bleeding from the rectum. A. A. LANDSMAN. *Arch. Pediat.*, 1923, xl, 531.
- Fistula of the rectum. C. J. DRUECK. *J. Iowa State M. Soc.*, 1923, xiii, 350.
- Improvement in the method of operating in fissure and fistula. A. T. CUSTER. *J. Am. M. Ass.*, 1923, lxxxi, 548.
- The early diagnosis of cancer of the rectum. A. CROOK-ALL. *Northwest Med.*, 1923, xxii, 283.
- A simple, bloodless, ambulant hæmorrhoid operation. J. B. H. WARING. *Therap. Gaz.*, 1923, 3 s. xxxix, 535.
- The surgical physiology of the large intestine. C. LEFEBVRE. *Arch. franco-belges de chir.*, 1923, xxvi, 215. [559]
- Total colectomy. P. DUVAL. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 1062.

Liver, Gall-Bladder, Pancreas, and Spleen

An experimental anatomical investigation into the blood and bile channels of the liver, with special reference to the compensatory arterial circulation of the liver in its relation to surgical ligation of the hepatic artery. H. N. SEGALL. *Surg., Gynec. & Obst.*, 1923, xxxvii, 152.

Observations upon the phenoltetrachlorophthalein test for liver function. C. C. HIGGINS. *Ann. Clin. Med.*, 1923, ii, 30. [559]

Animal experimentation on the influence upon the secretion of bile of the administration of fluids, preparations of internal secretory glands, and various drugs. O. SPECHT. *Beitr. z. klin. Chir.*, 1923, cxxviii, 249. [559]

Infectious jaundice in the United States. G. BLUMER. *J. Am. M. Ass.*, 1923, lxxxi, 353.

Hepatic abscess, case report. L. W. FRANK. *Kentucky M. J.*, 1923, xxi, 403.

Hydatid cyst of the liver opening into the duodenum. G. JEAN. *Bull. et mém. Soc. anat. de Par.*, 1923, xciii, 423.

Biliary pseudo-adenomata of the liver. C. OBERLING. *Bull. et mém. Soc. anat. de Par.*, 1923, xciii, 437.

Malignant disease of the liver; case report with autopsy findings. H. NISBET. *South. M. & S.*, 1923, lxxxv, 417.

An intrahepatic biliary epithelioma in a woman of 23 years. L. BERGER. *Bull. et mém. Soc. anat. de Par.*, 1923, xciii, 452.

Four cases requiring liver surgery. A. E. HALSTEAD. *Surg. Clin. N. Am.*, 1923, iii, 973.

The mortality after liver and pancreas operations. E. S. JUDD and J. H. LYONS. *Ann. Surg.*, 1923, lxxviii, 195. [560]

A consideration of tumor as a symptom of gall-bladder disease. R. S. FOWLER. *Am. J. Surg.*, 1923, xxxvii, 204.

Some important points in the diagnosis of gall-bladder disease; the technique of cholecystectomy. G. L. McWHORTER. *Surg. Clin. N. Am.*, 1923, iii, 1049.

Peritonitis following operation for chronic cholecystitis of influenzal origin. B. Z. CASHMAN. *Atlantic M. J.*, 1923, xxvi, 732.

The influence of cholelithiasis upon the digestive tract. C. ROHDE. *Klin. Wchnschr.*, 1923, ii, 631. [560]

The effect of cholelithiasis and cholecystectomy on the secretory function of the stomach and duodenum. E. DANGSCHAT. *Beitr. z. klin. Chir.*, 1923, cxxviii, 605. [561]

Pyloric and duodenal stenoses due to gall-stones and their surgical treatment. F. PAPIN. *J. de méd. de Bordeaux*, 1923, xcv, 75. [561]

Cholecystectomy for lithiasis; transverse section of three-quarters of the circumference of the common duct; suture; cure. F. PAPIN. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 332. [561]

Subsequent examinations of patients operated upon for gall-stones in the Serafim Hospital in the period from 1891 to 1912. K. GRAMÉN. *Hygiea, Stockholm*, 1923, lxxxv, 356. [561]

Cholecystectomy without drainage. W. A. COVENTRY. *Surg., Gynec. & Obst.*, 1923, xxxvii, 212.

The care of the stump after cholecystectomy. E. SEITZ. *Zentralbl. f. Chir.*, 1923, I, 713. [562]

The end-results of 236 cholecystectomies and eighty-two choledochotomies from the standpoint of postoperative

complaints. L. SIMON and A. SCHLEGEL. *Beitr. z. klin. Chir.*, 1923, cxxviii, 625. [562]

Surgery of the gall-bladder. S. BUNNELL. *California State J. M.*, 1923, xxi, 287, 330.

Special points in gall-bladder surgery. G. W. CRILE. *Ann. Surg.*, 1923, lxxviii, 192. [562]

The selection of cases which may be benefited by intermittent or continuous medical drainage of the gall tract, with a brief discussion of methods. B. B. V. LYON. *Internat. J. Surg.*, 1923, xxxvi, 285. [562]

Stone in the common and hepatic ducts. J. SHERREN. *Lancet*, 1923, ccv, 7. [563]

The surgery of the hepatic and common bile ducts. W. J. MAYO. *Lancet*, 1923, cciv, 1299. [563]

Repair of the common duct. L. L. McARTHUR. *Surg. Clin. N. Am.*, 1923, iii, 953.

Secondary operations upon the biliary system. B. MOYNIHAN. *Lancet*, 1923, ccv, 4. [565]

Chronic biliary fistula; implantation of sinus into the stomach. H. LILIENTHAL. *Ann. Surg.*, 1923, lxxvii, 765. [565]

Persistent pain as a characteristic early symptom in acute pancreatitis. E. GLASS. *Deutsche med. Wchnschr.*, 1923, xlix, 275. [566]

Accessory pancreas; pylorotomy; cerebral metastasis and death. OUDARD, JEAN, and SEGUY. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 1078.

Acute hæmorrhagic pancreatitis: a case presenting certain unusual features. A. G. T. FISHER. *Brit. J. Surg.*, 1923, xi, 179. [566]

Chronic pancreatitis. G. F. PETRASCHESKAJA. *Festschr. z. Prof. Netschajeff's 50jahr. Dokt. Jubil.*, 1922, ii, 298. [566]

A clinical study of pancreatitis. J. B. DEEVER. *Ann. Clin. Med.*, 1923, ii, 1. [566]

Early operation for acute pancreatitis. E. SCHWARZMANN. *Wien. klin. Wchnschr.*, 1923, xxxvi, 397.

Pancreatic cyst. A. D. BEVAN. *Surg. Clin. N. Am.*, 1923, iii, 887. [567]

Pancreatic cysts. W. J. LINDEMANN. *Nowy Chir. Arch.*, 1922, ii, 413. [567]

Cancer of the pancreas: report of cases. H. I. GOLDSTEIN. *J. Med. Soc. N. Jersey*, 1923, xx, 262.

Roentgenological diagnosis of carcinoma of the tail of the pancreas. T. SCHOLZ and F. PFEIFFER. *J. Am. M. Ass.*, 1923, lxxxi, 275. [567]

The splenic function. P. CHEVALLIER. *Presse méd.*, *Par.*, 1923, xxxi, 691.

The rôle of the spleen in certain anæmic conditions. E. S. CROSS. *N. York M. J. & Med. Rec.*, 1923, cxviii, 227.

A case of splenic anæmia. J. RIEUX and G. DELATER. *Bull. et mém. Soc. méd. d. hôp. de Par.*, 1923, 3 s. xxxix, 1157.

Splenectomy in hæmorrhagic purpura. J. M. HITZROT. *Ann. Surg.*, 1923, lxxviii, 186. [568]

Miscellaneous

Actinomycosis of the abdomen. N. TAGLIAVACCHIE. *Rev. Assoc. méd. argent.*, 1923, xxxvi, 203.

Actinomycosis of the abdominal wall. H. ALBERT, J. B. HARDY, and J. W. HARRISON. *J. Am. M. Ass.*, 1923, lxxxi, 653.

The roentgen analysis of the right diaphragm. E. H. SKINNER. *J. Radiol.*, 1923, iv, 270.

Eventration of the diaphragm. M. B. CLOPTON. *Ann. Surg.*, 1923, lxxviii, 155.

Strangulated diaphragmatic hernia of traumatic origin; with report of a case. J. L. CROOK. *Surg., Gynec. & Obst.*, 1923, xxxvii, 185.

Two cases of traumatic diaphragmatic hernia. COURVOISIER, GOETZ, and JACOB. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 1022.

Postoperative evisceration. M. BUFALINI. *Ann. ital. di chir.*, 1923, ii, 612.

The differential diagnosis of acute abdominal conditions in childhood. J. S. STONE. *Boston M. & S. J.*, 1923, clxxxix, 303.

The problem of diagnosis in surgical lesions of the right iliac region. A. B. COOKE. *J. Am. M. Ass.*, 1923, lxxxi, 627.

The recognition of intra-abdominal growths. W. TESCHENDORF. *Deutsche med. Wchnschr.*, 1923, xlix, 681.

The technique of examination by pneumoperitoneum. K. FRIK. *Fortschr. a. d. Geb. d. Roentgenstrahlen*, 1923, xxx, 561. [568]

A report of three unusual abdominal cases. C. H. PARKER. *Am. J. Roentgenol.*, 1923, x, 605. [568]

Resuscitation in abdominal surgery. W. W. BABCOCK. *Am. J. Obst. & Gynec.*, 1923, vi, 179. [568]

GYNECOLOGY

Uterus

The surgical aspects of uterine malpositions. J. A. PETTIT. *J. Iowa State M. Soc.*, 1923, xii, 352.

The technique of surgical intervention in retroversion of the non-pregnant uterus. R. PROUST. *Gynéc. et obst.*, 1923, viii, 123.

Indications for surgical intervention in retrodeviations of the non-pregnant uterus. H. HENNEBERG. *Gynéc. et obst.*, 1923, viii, 101.

A brief series of uterine suspension cases, with follow-up results. J. R. BOLING. *J. South Carolina M. Ass.*, 1923, xix, 567.

Uterus bicornis duplex with enormous unilateral hæmatocolpos from retention of menstrual fluid for at least seven years. B. C. HIRST. *Am. J. Obst. & Gynec.*, 1923, vi, 233.

Surgical relief of dysmenorrhœa. C. C. KENNEDY. *Minnesota Med.*, 1923, vi, 507.

The treatment of benign uterine hæmorrhage by irradiation. W. C. DANFORTH. *Am. J. Obst. & Gynec.*, 1923, vi, 172.

Two cases of tuberculosis of the endometrium. P. F. WILLIAMS. *Am. J. Obst. & Gynec.*, 1923, vi, 230.

Intestinal-uterine fistulæ and their treatment. O. PARSAMOFF. *Gynaekoloja i Akuscherstwo*, 1922, i. [570]

The incidence of cervical erosion following normal childbirth and results obtained with the Dickinson method. W. KERWIN. *Am. J. Obst. & Gynec.*, 1923, vi, 185.

Cancer of the uterus. J. W. LONG. *South. M. & S.*, 1923, lxxxv, 414.

Cancer of the neck of the uterus treated with radium; cure maintained for twelve years. DEGRAIS. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 225. [570]

Hysterectomy in certain cases of pulmonary tuberculosis, particularly as an alternative for therapeutic abortion. J. F. BALDWIN. *Surg., Gynec. & Obst.*, 1923, xxxvii, 201.

Surgical treatment of fibromyomata versus roentgen therapy. CASTRO SILVA. *Rev. de gynec. e d'obst.*, 1923, xvii, 189.

Hysterectomy for fibromyomata previously irradiated. F. NARVARRO BLASCO. *Arch. de med., cirug. y especial.*, 1923, xi, an. de la Soc. ginec. españ., 73. [570]

Technique in abdominal hysterectomy. C. T. SOUTHER. *Cincinnati J. M.*, 1923, iv, 298.

Vaginal hysterectomy combined with colpovesicorrhaphy and colpoperineorrhaphy. C. CULBERTSON. *Surg. Clin. N. Am.*, 1923, iii, 1157.

Adnexal and Peri-Uterine Conditions

Radiography of closed fallopian tubes. W. T. KENNEDY. *Am. J. Obst. & Gynec.*, 1923, vi, 12. [570]

Insufflation of the uterus and fallopian tubes. A. H. ALDRIDGE. *Am. J. Obst. & Gynec.*, 1923, vi, 53. [570]

Ovarian cysts in children. H. T. WILSON. *Texas State J. M.*, 1923, xix, 248.

Suppurating cyst of the right ovary with necrosis of anterior wall of the rectum. TOURNEUX and BAILLAT. *Bull. Soc. d'obst. et de gynec. de Par.*, 1923, xii, 458.

The relation between adnexal disease and appendicitis. M. FLESCHE. *Muenchen. med. Wchnschr.*, 1923, lxx, 353.

The clinical aspects of adenomyomata of the female pelvic organs. A. DONALD. *Proc. Roy. Soc. Med.*, Lond., 1923, xvi, Sect. Obst. & Gynec., 82. [571]

Primary chorio-epithelioma of the broad ligament. BERGERET and MOULONGUET. *Bull. Soc. d'obst. et de gynec. de Par.*, 1923, xii, 206.

Wolfian cyst of the broad ligament. BINET and FOURCHE. *Bull. Soc. d'obst. et de gynec. de Par.*, 1923, xii, 397.

External Genitalia

Epispadias in women; report of a case. W. E. LOWER. *J. Urol.*, 1923, x, 149.

Gastrovaginal fistula secondary to an enormous accumulation of pus in Douglas' pouch. E. GODLEWSKI. *Bull. Soc. d'obst. et de gynec. de Par.*, 1923, xii, 249.

Vesicovaginal fistulae after Wertheim's operation. ANDRÉ and GRANDINEAU. *Bull. Soc. d'obst. et de gynec. de Par.*, 1923, xii, 314.

Rupture of the bladder in a case of vaginal defect. SCHUBERT. *Beitr. z. klin. Chir.*, 1923, cxxix, 454.

Some suggestions in the removal of Bartholin-gland duct retention cysts without rupture. C. E. BARNETT. *Urol. & Cutan. Rev.*, 1923, xxvii, 490.

Primary carcinoma of the female urethra; report of a case treated by diathermy. V. J. O'CONNOR. *Urol. & Cutan. Rev.*, 1923, xxvii, 475. [571]

Miscellaneous

Methods of anaesthesia in gynecology. SCHICKELÉ. *Gynec. et obst.*, 1923, viii, 234.

The Pfannenstiel incision in gynecology. PATEL and VERGNORY. *Lyon chir.*, 1923, xx, 299.

Postoperative adhesions following gynecological laparotomies. E. HAUG and K. HEUDORFER. *Muenchen. med. Wchnschr.*, 1923, lxx, 463. [571]

The indications and limitations of irradiation in obstetrics and gynecology. H. C. WILLIAMSON. *N. York State J. M.*, 1923, xxiii, 341.

Tuberculosis of the genitalia, with a review of the literature. B. SOLOMONS. *Med. Press*, 1923, n.s. cxvi, 132.

OBSTETRICS

Pregnancy and Its Complications

Ante-natal diagnosis. F. M. HUXLEY. *Lancet*, 1923, ccv, 321.

Roentgenograms of the fetal skeleton as a positive sign of pregnancy. I. F. STEIN and R. A. ARENS. *J. Am. M. Ass.*, 1923, lxxxi, 4. [573]

Pregnancy after interposition of the uterus. I. F. STEIN. *J. Am. M. Ass.*, 1923, lxxxi, 468.

The weight during pregnancy. C. R. HANNAH. *Texas State J. M.*, 1923, xix, 224. [573]

Ocular disturbances in pregnancy and during the puerperium. N. M. BLACK. *J. Am. M. Ass.*, 1923, lxxxi, 529.

Bacterial endocarditis complicating pregnancy. M. ROSENHOHN. *Bull. Lying-In Hosp. N. York*, 1923, xii, 259.

Nephrolithiasis and pregnancy. A. P. HEINECK. *Am. J. Obst. & Gynec.*, 1923, vi, 191.

Torsion of the omentum during pregnancy. SCHOEFFER and KELLER. *Bull. Soc. d'obst. et de gynec. de Par.*, 1923, xii, 441.

The convulsive toxæmia of pregnancy. R. MCPHERSON. *Boston M. & S. J.*, 1923, clxxxix, 219.

The treatment of toxæmia of pregnancy with convulsions. T. PENNAL. *J. South Carolina M. Ass.*, 1923, xix, 558.

Abdominal pain during pregnancy. R. HORNO ALCORTA. *Clin. y lab.*, 1923, ii, 138.

Fibroid tumors complicating pregnancy and their treatment. G. W. KOSMAK. *Am. J. Obst. & Gynec.*, 1923, vi, 63. [573]

Fibromyomata and pregnancy; hysterectomy. AUDEBERT and FOURNIER. *Bull. Soc. d'obst. et de gynec. de Par.*, 1923, xii, 416.

Fibromyoma and pregnancy; hæmatometra and intra-uterine polyp; subtotal hysterectomy; cure. FOURNIER. *Bull. Soc. d'obst. et de gynec. de Par.*, 1923, xii, 414.

Myomectomy in the eighth month of pregnancy. PLAUCHU and GAUDON. *Bull. Soc. d'obst. et de gynec. de Par.*, 1923, xii, 306.

Report of a case of spontaneous rupture in a fibroid uterus with a false diagnosis of placenta prævia. G. W. KOSMAK. *Am. J. Obst. & Gynec.*, 1923, vi, 221.

Report of a case of endometritis decidualis polyposa. E. C. SAGE. *Am. J. Obst. & Gynec.*, 1923, vi, 206.

Placenta prævia in twin pregnancy. M. ROSENHOHN. *Bull. Lying-In Hosp. N. York*, 1923, xii, 260.

Pregnancy, carcinoma of the cervix; radium therapy; continuation of the pregnancy; a living child. H. HARTMANN and S. FABRE. *Bull. Soc. d'obst. et de gynec. de Par.*, 1923, xii, 167.

Missed abortion. C. H. WATERS. *Nebraska State M. J.*, 1923, viii, 289.

Full-term ectopic pregnancy with a living child. F. A. DORMAN. *Am. J. Obst. & Gynec.*, 1923, vi, 219.

A case of abdominal pregnancy at sixteen months. H. S. GIEGER and J. S. McEWAN. *South. M. J.*, 1923, xvi, 622.

The diagnosis of tubal pregnancy. E. NOVAK. *Am. J. M. Soc.*, 1923, clxvi, 228.

The processes of tubal pregnancy. E. McDONALD. *Am. J. Obst. & Gynec.*, 1923, vi, 72. [573]

Specimen of twin, univitelline pregnancy. VALLOIS and ROUME. Bull. Soc. d'obst. et de gynéc. de Par., 1923, xii, 358.

Papryaceous fetus; report of a case. P. J. KEIZER, R. E. KEIZER, and I. B. BARTLE. Northwest Med., 1923, xxii, 291.

Labor and Its Complications

Delivery at term; long interval between expulsion of twins. S. RÉMY. Bull. Soc. d'obst. et de gynéc. de Par., 1923, xii, 400.

The etiology of eclampsia. R. OTTERBERG. J. Am. M. Ass., 1923, lxxxi, 295. [574]

Twin eclampsia and fetal eclampsia. LAFFONT and GAUJOUX. Bull. Soc. d'obst. et de gynéc. de Par., 1923, xii, 224.

The treatment of eclampsia—a symposium. B. M. ANSPACH, W. GILLESPIE, W. D. MACON, W. S. BOWEN, and others. Therap. Gaz., 1923, 3 s. xxxix, 457. [574]

The alleviation of pain in labor. W. B. MCKNIGHT. Texas State J. M., 1923, xix, 231.

Methods of anaesthesia during labor. O. J. RAPIN. Gynec. et obst., 1923, viii, 211.

Scopolamin-morphine anaesthesia in obstetrics: its advantages and limitations. F. W. PHIFER. Texas State J. M., 1923, xix, 226.

Sacral anaesthesia in obstetrics. S. P. OLDHAM. Kentucky M. J., 1923, xxi, 321.

Two cases of epidural sacral anaesthesia for the difficult application of forceps. GARIPUY and BERNARDBEIG. Bull. Soc. d'obst. et de gynéc. de Par., 1923, xii, 347.

The intracranial mechanism of labor and its relation to later disabilities of the child. B. CROTHERS. Am. J. Obst. & Gynec., 1923, vi, 210.

Spinal and cranial injuries of the baby in breech deliveries. R. N. PIERSON. Am. J. Obst. & Gynec., 1923, vi, 210.

Version. D. J. DAVIES. Cincinnati J. M., 1923, iv, 292.

Labor complicated by congenital diaphragmatic hernia, with autopsy findings. D. LONGAKER. Am. J. Obst. & Gynec., 1923, vi, 240.

Prolonged aseptic retention of the placenta. E. HOUEL. Bull. Soc. d'obst. et de gynéc. de Par., 1923, xii, 290.

Symphiotomy, craniotomy, and caesarean section. A. E. CHISHOLM. Lancet, 1923, ccv, 276.

Caesarean section. L. MACKECHNEY. Texas State J. M., 1923, xix, 336.

Abdominal caesarean section. H. MAGA LHAEO. Rev. de gynec. e d'obst., 1923, xvii, 225.

Gastro-intestinal hæmorrhage following caesarean section for central placenta prævia. LAURENTIE. Bull. Soc. d'obst. et de gynéc. de Par., 1923, xii, 403.

Indications for caesarean section: podalic version. J. GILBERT. Texas State J. M., 1923, xix, 232.

Porro caesarean section, twin pregnancy. M. A. PEÓN. Rev. de cien. méd., Mex., 1923, i, 369.

Posterior accretion of a bicornate uterus—caesarean section. F. A. DORMAN. Am. J. Obst. & Gynec., 1923, vi, 218.

Caesarean section with hysterectomy for congenital malformation of the vagina. J. E. COUNTRYMAN and J. C. SUTER. J. Am. M. Ass., 1923, lxxxi, 547.

A diaphragm at the internal os complicating pregnancy; caesarean section; recovery. LEVANT and PORTES. Bull. Soc. d'obst. et de gynéc. de Par., 1923, xii, 197.

Spontaneous rupture of a caesarean scar. G. DE COURCY Cincinnati J. M., 1923, iv, 305.

The report of a case of rupture of the uterus. R. H. DUNN. Virginia M. Month., 1923, i, 253. [575]

Maternal mortality in Richmond; a preliminary survey. C. C. HUDSON and M. P. RUCKER. Virginia M. Month., 1923, i, 300.

Puerperium and Its Complications

Two cases of puerperal psychosis. R. CRUCHET and M. RIVIÈRE. Bull. Soc. d'obst. et de gynéc. de Par., 1923, xii, 232.

The prognosis of puerperal eclampsia in cases of expulsion of dead and macerated fetuses. J. M. ROUVIER. Bull. Soc. d'obst. et de gynéc. de Par., 1923, xii, 219.

Vaccinotherapy in puerperal infection. VORON, MICHON, and SEDALLIAN. Lyon chir., 1923, xx, 227. [575]

Newborn

Care of the newborn in the first weeks of life. E. J. HUENEKENS. J. Am. M. Ass., 1923, lxxxi, 624.

Placental iron and its relationship to icterus neonatorum. A. C. WILLIAMSON. Surg., Gynec. & Obst., 1923, xxxvii, 57. [576]

The circulatory, respiratory, and nervous disturbances in the newborn. G. B. MCFARLAND. Texas State J. M., 1923, xix, 245.

Blood pressure in the newborn following normal and pathological labor. R. REIS and A. J. CHALOUFKA. Surg., Gynec. & Obst., 1923, xxxvii, 206.

Hæmorrhages in the newborn. L. A. WING. Bull. Lying-In Hosp., N. York, 1923, xii, 253.

Intracranial hæmorrhage in the newborn. W. SHARPE. J. Am. M. Ass., 1923, lxxxi, 620.

Purulent meningitis in the newborn. D. H. SHERMAN. Arch. Pediat., 1923, xl, 557.

Infant mortality in the cities of Texas. J. H. DAVIS. Texas State J. M., 1923, xix, 238.

Miscellaneous

Prenatal care and maternity welfare from the standpoint of the state. F. L. MCKAY. N. York State J. M., 1923, xxiii, 326.

Prenatal care and maternity welfare from the standpoint of the regional consultant. J. K. QUIGLEY. N. York State J. M., 1923, xxiii, 332.

Prenatal care and maternity welfare from the standpoint of the maternity center without hospital connection. G. W. KOSMAK. N. York State J. M., 1923, xxiii, 335.

Prenatal care in clinics affiliated with hospitals. J. O. POLAK. N. York State J. M., 1923, xxiii, 338.

Some obstetrical problems. F. T. VAN EMAN. J. Missouri State M. Ass., 1923, xx, 278.

Problems of obstetrical practice. W. W. CHIPMAN. Bull. Lying-In Hosp. N. York, 1923, xii, 219.

The diagnosis of borderline obstetrics. G. C. MOSHER. Am. J. Obst. & Gynec., 1923, vi, 188.

The sociological responsibility of obstetrics and gynecology. O. P. HUMSTONE. Am. J. Obst. & Gynec., 1923, vi, 149.

Observations on the electric breast pump. I. A. ABT. J. Am. M. Ass., 1923, lxxxi, 391.

GENITO-URINARY SURGERY

Adrenal, Kidney, and Ureter

- Compensatory hypertrophy of the adrenals in guinea pigs and rabbits. O. SPECHT. *Beitr. z. klin. Chir.*, 1923, cxxix, 311.
- Congenital tumors of adrenal origin, with particular reference to hypernephroma of the kidney—with report of three cases. R. L. PITTMAN. *South. M. & S.*, 1923, lxxv, 419.
- Demonstration of a patient in whom one suprarenal gland was extirpated because of suprarenal arterial gangrene. SALOGA. *Verhandl. d. Gesellsch. f. Chir.*, Moscow, 1922. [577]
- Innervation of the kidney. E. PAPIN. *Arch. franco-belges de chir.*, 1923, xxvi, 615.
- A consideration of kidney function. W. W. JARRELL. *J. Med. Ass. Georgia*, 1923, xii, 323.
- The benzoate test for renal function. F. B. KINGSBURY. *Arch. Int. Med.*, 1923, xxxii, 175.
- The index of elimination of phenolsulphonaphthalein as an indication of surgical risk. L. F. MILLIKEN. *Urol. & Cutan. Rev.*, 1923, xxvii, 473.
- Salivary urea and the mercury combining power of saliva: a new and simple index of renal insufficiency. P. S. HENCH. *Med. Clin. N. Am.*, 1923, vii, 123. [577]
- Difficulties in estimating surgical insufficiency of the kidney. E. JOSEPH. 47 *Versamml. d. deutsch. Gesellsch. f. Chir.*, 1923. [578]
- Some sources of error in the interpretation of the phtalein test, with special reference to the effect of exercise. W. H. HIGGINS. *Virginia M. Month.*, 1923, 1, 285.
- Free grafting of omentum in a case of periclititis; nephrectomy for movable kidney; repeated crises of anuria cured by ureteral catheterization. O. MASCARENHAS. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 212. [578]
- Three cases of traumatic rupture of the kidney. CHATON. *J. d'urolog. méd. et chir.*, 1923, xv, 468.
- Polycystic kidney in the newborn. S. S. RISACHER. *Bull. Soc. d'obst. et de gynéc. de Par.*, 1923, xii, 267.
- Kidney stone. A. D. BEVAN. *Surg. Clin. N. Am.*, 1923, iii, 903.
- Ossification in kidney stones. D. B. PHEMISTER. *Ann. Surg.*, 1923, lxxviii, 239.
- Certain features of renal calculus. E. ELIOT, JR. *Ann. Surg.*, 1923, lxxviii, 231.
- Three cases of bilateral renal calculus. C. NOON. *Lancet*, 1923, ccv, 325.
- A case of silent calculous pyonephrosis. H. B. GESSNER. *N. Orleans M. & S. J.*, 1923, lxxvi, 66.
- Actinomycosis of the kidney. A. D. BEVAN. *Surg. Clin. N. Am.*, 1923, iii, 899.
- Pathological changes in the kidney in congenital syphilis. E. DE S. CAMPOS. *Bull. Johns Hopkins Hosp.*, Balt., 1923, xxxiv, 253.
- Studies of the contractility of the renal pelvis and the ureter. A. ISREAL. *Ztschr. f. urol. Chir.*, 1923, xii, 328. [579]
- Leukoplakia of the renal pelvis with the formation of an epithelial thrombus. O. CORSDRESS. *Ztschr. f. urol. Chir.*, 1923, xiii, 1.
- Pyelitis in infants and children. G. E. JOHNSON. *J. Lancet*, 1923, xliii, 395.
- Chronic pyelitis or infected hydronephrosis. A. BLOCH. *Ztschr. f. urol. Chir.*, 1923, xii, 219. [579]
- Traumatic rupture of a hydronephrosis. H. W. L. MOLESWORTH. *Lancet*, 1923, ccv, 224.
- Pyelography. H. L. KRETSCHMER. *Surg. Clin. N. Am.*, 1923, iii, 985.
- Embryoma of the kidney. H. GAGE and D. S. ADAMS. *Ann. Surg.*, 1923, lxxviii, 226.
- Tumors of the kidney. D. N. EISENDRATH. *Surg. Clin. N. Am.*, 1923, iii, 1007. [579]
- Adenosarcoma of kidney in a child. A. J. HOOD and H. ALBERT. *California State J. Med.*, 1923, xxi, 281. [579]
- The diagnosis and surgical treatment of malignant tumors of the kidney. W. E. STEVENS. *J. Urol.*, 1923, x, 121. [580]
- Necrosis of the right kidney from thrombosis of the renal vein; nephrectomy; recovery. G. MARION. *J. d'urolog. méd. et chir.*, 1923, xv, 455.
- The diagnosis of surgical kidney lesions. G. M. MEYERS. *Colorado Med.*, 1923, xx, 210.
- The surgery of the kidney. W. E. LOWER. *Ann. Surg.*, 1923, lxxviii, 250.
- Practical points of interest in embryology and their relation to kidney surgery. G. V. A. BROWN. *Illinois M. J.*, 1923, xlv, 133.
- Complications of nephrectomy. R. FRONSTEIN. *Klinitscheskaja Med.*, 1922, 1, 7. [580]
- Animal experimentation in anastomosing the ureters into the gall-bladder in extirpation of the bladder. KEHL. *Beitr. z. klin. Chir.*, 1923, cxxviii, 687. [580]
- Ureteral calculus. R. H. HERBST. *Surg. Clin. N. Am.*, 1923, iii, 1063.
- Calculi of the lumbar ureter. SOUBEYRAM. *Arch. franco-belges de chir.*, 1923, xxvi, 663.
- A simple treatment of certain lesions of the intravesical ureter in the female. E. J. HARNAGEL. *J. Urol.*, 1923, x, 135. [581]
- Method of procedure in treating wounds or injuries of the ureter. ALBERTIN. *Lyon chir.*, 1923, xx, 404.

Bladder, Urethra, and Penis

- Absorption from the urinary bladder. F. C. MANN and J. A. H. MAGOUN. *Ann. J. M. Sc.*, 1923, clxvi, 96. [581]
- Food allergy as a cause of irritable bladder. W. W. DUKE. *J. Urol.*, 1923, x, 173.
- Report of a case of true hour-glass bladder. H. L. KRETSCHMER and H. L. MORRIS. *J. Urol.*, 1923, x, 181.
- The treatment of intestino-vesical fistula. LEGUEU. *J. d'urolog. méd. et chir.*, 1923, xv, 474.
- The value of diagnostic X-ray in neoplasms of the urinary bladder. R. E. FRICKE. *Therap. Gaz.*, 1923, 3 s. xxxix, 549. [581]
- Carcinoma in a diverticulum of the bladder. O. SCHWARZ. *Ztschr. f. urol. Chir.*, 1923, xiii, 47.
- Carcinoma of the bladder treated by radium needles inserted into the tumor mass through the vaginal wall. R. H. HERBST. *Surg. Clin. N. Am.*, 1923, iii, 1077.
- Carcinoma of the bladder. J. B. DEEVER and W. H. MACKINNEY. *Ann. Surg.*, 1923, lxxviii, 254.
- Sarcoma of the bladder. C. J. LOWEN. *Colorado M.*, 1923, xx, 221.
- Report of cases of malignant growths of the bladder treated by resection and radium. H. C. BUGBEE. *J. Urol.*, 1923, x, 159. [581]
- Gonorrhoeal urethritis and its complications in the male. T. M. DORSEY. *Kentucky M. J.*, 1923, xxi, 419.
- Large urethroperineal fistula treated by mobilization and urethrorrhaphy. M. JUNGANO. *J. d'urolog. méd. et chir.*, 1923, xv, 459.

Papilloma of the posterior urethra; the cause of profuse hæmorrhage and urinary retention. E. DAVIS. *Surg., Gynec. & Obst.*, 1923, xxxvii, 194.

The genesis and present-day treatment of strictures of the urethra. E. BRACK. *Arch. f. path. Anat.*, 1923, ccxli, 372. [582]

Plastic operations on the male urethra. H. JOSEPH. *Ztschr. f. urol. Chir.*, 1923, xii, 158. [582]

An epithelioma of the penis following phagedenic chancroidal infection. N. K. FORSTER. *Urol. & Cutan. Rev.*, 1923, xxvii, 488. [582]

Cancer of the penis. T. C. STELLWAGEN. *Therap. Gaz.*, 1923, 3 s. xxxix, 546.

Genital Organs

The prostate and eosinophilia. TOMAS DE LA MAZA. *Rev. españ. de cirug.*, 1923, v, 275.

Diseases of the prostate gland. T. M. DORSEY. *Urol. & Cutan. Rev.*, 1923, xxvii, 478.

Simple prostatitis in old men. R. DARGET. *Rev. de chir., Par.*, 1923, xlii, 459.

Papilloma of the prostatic urethra treated with radium and fulguration. R. H. HERBST. *Surg. Clin. N. Am.*, 1923, iii, 1071.

The incidence of malignant disease in the apparently benign enlargement of the prostate. R. H. J. SWAN. *Proc. Roy. Soc. Med., Lond.*, 1923, xvi, Sect. Urol., 71. [582]

Deep X-ray therapy in the treatment of metastatic pain in carcinoma of the prostate. C. A. WATERS and J. W. PIERSON. *South. M. J.*, 1923, xvi, 620.

On the surgical treatment of diseases of the prostate gland. E. S. JUDD. *Am. J. Surg.*, 1923, xxxvii, 200. [582]

Surgery of the prostate gland. J. H. GLEASON. *Boston M. & S. J.*, 1923, clxxix, 189.

The closure of the suprapubic urinary fistula following suprapubic prostatectomy: observations on sixty-eight cases. H. P. W. WHITE. *Brit. J. Surg.*, 1923, xi, 173. [582]

Tuberculosis of the epididymis. S. R. MAXEINER and R. H. WALDSCHMIDT. *Minnesota Med.*, 1923, vi, 492.

Vasotomy or Belfield's operation. R. ZAPATA. *Repert. de med. y cirug.*, 1923, xiv, 344.

Vasostomy for seminal vesiculitis, with a description of a new and improved technique for the operation. F. KIDD. *Lancet*, 1923, ccv, 213. [584]

Ligature of the vas by epididymectomy in the treatment of senility and depressive conditions. K. SAND. *J. d'urol. méd. et chir.*, 1923, xv, 431.

The structure of the testes of the chimpanzee and the physiological results of their transplantation. E. RETTERER and S. VORONOFF. *J. d'urol. méd. et chir.*, 1923, xv, 417.

The operative treatment of ectopia testis and its results. A. ZENO and L. A. INTROINI. *Rev. méd. d. Rosario*, 1923, xiii, 155.

Miscellaneous

A history of the development of urology as a specialty. T. D. MOORE. *J. Urol.*, 1923, x, 99.

Some things the general practitioner should know about urology. G. J. THOMAS. *J. Lancet*, 1923, xliii, 322. [584]

Urological ailments encountered by the general practitioner. B. A. THOMAS. *Internat. J. Med. & Surg.*, 1923, xxxvi, 333.

Hæmaturia. A. H. CROSBIE. *Urol. & Cutan. Rev.*, 1923, xxvii, 491.

Hæmaturia. J. J. BANSBACH. *Urol. & Cutan. Rev.*, 1923, xxvii, 485.

A note on the bacteriostatic action of urine after the intravenous administration of mercurochrome to normal rabbits. J. H. HILL and J. A. C. COLSTON. *Bull. Johns Hopkins Hosp., Balt.*, 1923, xxxiv, 220. [585]

New germicides and antiseptics used in urethrovocal irrigation. J. T. STUKES. *J. Med. Ass. Georgia*, 1923, xii, 326.

Anæsthesia in urinary surgery. F. CATHELIN. *Arch. franco-belges de chir.*, 1923, xxvi, 670.

Absorption from the urinary tract. J. A. H. MAGOUN, JR. *J. Urol.*, 1923, x, 67. [585]

The causation and immediate treatment of retention of urine in the male. W. K. IRWIN. *Practitioner*, 1923, cxi, 134.

Report of a case of schistosomum hæmatobium. J. PEDERSEN. *J. Urol.*, 1923, x, 175.

SURGERY OF THE BONES, JOINTS, MUSCLES, TENDONS

Conditions of the Bones, Joints, Muscles, Tendons, Etc.

Adjuvants and antagonists of bone nutrition. G. MOURIQUAND, P. MICHEL, and R. SANYAS. *Presse méd., Par.*, 1923, xxxi, 697.

The conflicting properties of periosteum and bone medulla in the formation of bone. P. R. KATZENSTEIN. *Prog. de la clin., Madrid*, 1923, xxv, 510. [586]

Osteomyelitis. F. L. CHENAULT. *Internat. J. Med. & Surg.*, 1923, xxvi, 340.

Osteomyelitis. A. J. OCHSNER. *J. Lancet*, 1923, xliii, 315. [586]

Acute osteomyelitis. L. A. MCALPINE. *Virginia M. Month.*, 1923, i, 325.

Acute osteomyelitis. A. M. FORBES. *Canadian M. Ass. J.*, 1923, xiii, 579.

The differential diagnosis of osteomyelitis. G. ROSENBERG. *Med. Klin.*, 1923, xix, 749.

A case of osteitis deformans. P. B. ROTH. *Proc. Roy. Soc. Med., Lond.*, 1923, xvi, Sect. Orthop., 49.

Metastatic tumors of bone. C. A. JOLL. *Brit. J. Surg.*, 1923, xi, 38. [586]

The X-ray diagnosis of bone lesions. R. W. LOVETT. *Wisconsin M. J.*, 1923, xxii, 123.

Roentgen-ray study of non-luetic periosteal bone lesions. R. G. GILES. *Am. J. Roentgenol.*, 1923, x, 593.

Myositis ossificans localized in an area of necrobiosis. CHATON and CAILLODS. *Presse méd., Par.*, 1923, xxxi, 228. [587]

A case of multiple xanthomatous granulomata in tendons. N. J. KUSNETZOWSKY. *Arch. f. klin. Chir.*, 1923, cxxiv, 73. [587]

The nature of the so-called rheumatoid arthritis and osteo-arthritis. A. G. T. FISHER. *Brit. M. J.*, 1923, ii, 102. [588]

Two cases of gonorrhœal arthritis treated by intra-articular injections of antigenococcus serum. AUVRAY. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 60.

A theoretical and practical contribution on scoliosis. F. SCHEDE. *Ztschr. f. orthop. Chir.*, 1923, xliii, 259.

A case of congenital scoliosis. K. P. BROWN. *Edinburgh M. J.*, 1923, n.s. xxx, 374.

Lesions of the lumbar spine and painful sacralization. E. AUBERT. *Bull. et mém. Soc. anat. de Par.*, 1923, xciii, 491.

- The causes and prevention of deformities of the pelvis. B. F. BUZBY. *J. Med. Soc. N. Jersey*, 1923, xx, 257.
- Volkmann's contracture. LECLERC and HALLOPEAU. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 1013.
- Bilateral congenital absence of the radius. L. P. SPEARS. *Kentucky M. J.*, 1923, xxi, 407.
- Habitual displacement of the ulnar nerve in cubitus varus and valgus. G. SCHMIDT. *Zentralbl. f. Chir.*, 1923, l, 474. [588]
- Synovial inflammation of the tendon sheaths of the hands and feet as an occupational disease. E. SATTLER. *Arch. f. klin. Chir.*, 1923, cxliii, 259. [588]
- A specimen of synostosis of phalangeal joints congenital (?) in origin. W. H. OGILVIE. *Proc. Roy. Soc. Med., Lond.*, 1923, xvi, Sect. Orthop., 51.
- A case of snapping hip. B. W. HOWELL. *Proc. Roy. Soc. Med., Lond.*, 1923, xvi, Sect. Orthop., 46.
- A case of pseudocoxalgia in an adult. G. PERKINS. *Proc. Roy. Soc. Med., Lond.*, 1923, xvi, Sect. Orthop., 48.
- Osteochondritis deformans juvenalis. W. SINGER. *Monatsschr. f. Kinderheilk.*, 1923, xxvi, 123.
- Microscopic findings in juvenile arthritis deformans—Legg-Calvé-Perthes osteochondritis deformans juvenilis coxae—and comparative research concerning the epiphysis of the head of the femur with particular reference to the fovea. F. J. LANG. *Arch. f. path. Anat.*, 1922, ccxxxix, 76. [589]
- Two cases of deforming osteochondritis of the hip, one case followed for eleven years and the other complicated by congenital lumbar kyphosis. ROBIN. *Rev. d'orthop.*, 1923, xxx, 229. [589]
- Acute osteomyelitis of the femur; vaccination; spontaneous fracture; recovery and consolidation. R. GRÉGOIRE. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 1093.
- A pulsating giant-cell tumor of the femur. H. ROUVILLOIS. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 1047.
- Unusual injuries about the knee joint. P. H. KREUSCHER. *Surg. Clin. N. Am.*, 1923, iii, 1127. [590]
- A clinical and anatomical study of a case of congenital genu recurvatum. BOULARAN and BOUNHOURE. *Rev. d'orthop.*, 1923, xxx, 245. [590]
- Gonorrhoeal arthritis of the knee; failure of serotherapy; arthrotomy; cure with conservation of movement. C. DUJARIER and M. P. WEIL. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 308. [591]
- Congenital club foot. E. D. MCBRIDE. *J. Oklahoma State M. Ass.*, 1923, xvi, 251.
- Can Koehler's disease of the second metatarsal be the result of chronic trauma? O. SCHREUDER. *Deutsche Ztschr. f. Chir.*, 1923, clxxviii, 145.
- Koehler's disease of the tarsal scaphoid. H. H. GREENWOOD. *Lancet*, 1923, ccv, 274.
- Juvenile deforming metatarsophalangeal osteochondritis. P. LEWIN. *J. Am. M. Ass.*, 1923, lxxxi, 189. [591]
- The mobilization of ankylosed joints by operation. F. D. DICKSON. *J. Missouri State M. Ass.*, 1923, xx, 266.
- A case of tendon transplantation. B. W. HOWELL. *Proc. Roy. Soc. Med., Lond.*, 1923, xvi, Sect. Orthop., 50.
- Operative fixation of the spinal column in tuberculous spondylitis. R. STRAETER. *Deutsche Ztschr. f. Chir.*, 1923, clxxvii, 313.
- Total subperiosteal removal of the clavicle in a case of osteomyelitis and regeneration of the bone. HECQUET. *Presse méd., Par.*, 1923, xxxi, 276. [592]
- Four cases of flexion contracture of the forearm treated by a muscle-sliding operation. C. M. PAGE. *Proc. Roy. Soc. Med., Lond.*, 1923, xvi, Sect. Orthop., 43. [592]
- Replacement of almost the entire radius by a mixed graft. P. HALLOPEAU. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 1090.
- Surgery of the phalanges. S. R. MILLER. *Internat. J. Med. & Surg.*, 1923, xxxvi, 343.
- Hamstring transplantation for quadriceps paralysis. P. D. COLONNA. *J. Bone & Joint Surg.*, 1923, v, 472. [592]
- Pseudarthrosis of the neck of the femur; osteoperiosteal grafting; cure. DUJARIER. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 354. [595]
- Coxa vara treated by osteotomy of the femoral neck and osteoperiosteal grafts. P. MAUCLAIRE. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 1107.
- Horizontal resection of the femoral condyles according to Laewen. KEHL. *Med. Klin.*, 1923, xix, 752.
- The prognosis after removal of the semilunar cartilages. R. J. McN. LOVE. *Brit. M. J.*, 1923, ii, 324.
- The operative treatment of hallux valgus on a physiological basis. H. ENGEL. *Arch. f. orthop. u. Unfall Chir.*, 1923, xxi, 437. [593]

Fractures and Dislocations

- Some essentials in fracture work. G. H. REESE. *Virginia M. Month.*, 1923, l, 328.
- Extension with rust-proof steel wire. F. BANGE. *Zentralbl. f. Chir.*, 1923, l, 863.
- Non-union in fractures: the massive bone graft. M. S. HENDERSON. *J. Am. M. Ass.*, 1923, lxxxi, 463. [593]
- A treatment for greenstick fractures and for dislocations of the clavicle. W. A. FULTON. *J.-Lancet*, 1923, xliii, 383.
- Bilateral fracture of the clavicle. COTTALORDA and HAYEM. *Arch. franco-belges de chir.*, 1923, xxvi, 695.
- The operative treatment of acromio-clavicular dislocations. P. DESCOMPS. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 294. [594]
- The treatment of fractures of the upper end of the humerus. J. N. BAKER. *South. M. J.*, 1923, xvi, 611.
- The treatment of diaphyseal fractures of the forearm. C. LENORMANT and J. SENEQUE. *Presse méd., Par.*, 1923, xxxi, 717.
- Compression fractures of the lower end of the radius. J. H. STEVENS. *U. S. Naval M. Bull.*, 1923, xix, 115.
- An improved Jones extension arm splint. J. DENMAN. *J. Am. M. Ass.*, 1923, lxxxi, 547.
- The treatment of dislocated semilunar carpal bones. G. G. DAVIS. *Surg., Gynec. & Obst.*, 1923, xxxvii, 225. [594]
- Epiphyseal separation of the ungual phalanx of the thumb. A. MOUCHET. *Bull. et mém. Soc. anat. de Par.*, 1923, xciii, 427.
- The general treatment of fractures, with special reference to fracture of the femur. E. T. NEWELL. *South. M. J.*, 1923, xvi, 608.
- Fractures of the neck of the femur. D. EVE, SR. *South. M. J.*, 1923, xvi, 606.
- Surgery of the Bones, Joints, Muscles, Tendons, Etc.**
- An instrument to facilitate the making of suture holes in certain bones. P. LEWIN. *J. Am. M. Ass.*, 1923, lxxxi, 393.
- Sulphur therapy in deforming diseases of the joints. H. HAYN. *Deutsche med. Wchnschr.*, 1923, xlix, 684.
- Discussion on arthroplasty at the International Congress of Surgeons. HEY GROVES, PUTTI, MACAUSLAND, and others. *Brit. M. J.*, 1923, ii, 142. [592]
- The artificial formation of sockets. The use of bone pegs for temporary fixation. H. SPITZY. *Ztschr. f. orthop. Chir.*, 1923, xliii, 284.

A case of intracapsular fracture of the neck of the femur. R. C. ELMISLIE. *Proc. Roy. Soc. Med., Lond.*, 1923, xvi, Sect. Orthop., 49.

Separated epiphysis of the lower end of the femur; two open operations. E. W. RYERSON. *Surg. Clin. N. Am.*, 1923, llii, 1043.

The result of a suture of an old fracture of the patella followed by suture of the patellar tendon thirty-two years

later. WALTHER. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 193. [595]

Fracture of the internal head of the tibia with great displacement; osteosynthesis; early walking. G. LABEY. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 195. [595]

Isolated fracture of the tarsal scaphoid. H. MONDOR and F. D'ALLAINES. *Bull. et mém. Soc. anat. de Par.*, 1923, xciii, 409.

SURGERY OF THE BLOOD AND LYMPH SYSTEMS

Blood Vessels

Methods of demonstrating the circulation in general as applied to a study of the renal circulation in particular. F. HINMAN, D. M. MORISON, and R. K. LEE-BROWN. *J. Am. M. Ass.*, 1923, lxxxi, 177. [596]

Embolism, thrombosis and phlebitis, some personal experiences. D. P. MACGUTHRIE. *Am. J. Surg.*, 1923, xxxvii, 197.

A case of pelvic aneurism. E. NEUBER. *Zentralbl. f. Chir.*, 1923, l, 865.

Abdominal aortic aneurism: a brief review of six abdominal aortic aneurisms in eight aneurisms found at 1,062 autopsies. E. R. GERNERT. *Kentucky M. J.*, 1923, xxi, 405.

A case of thrombosis of the mesenteric vein secondary to a reduced incarcerated hernia of brief duration. J. PHILIPOWICZ. *Zentralbl. f. Chir.*, 1923, l, 897.

A wound of the inferior vena cava. BONNET. *Lyon chir.*, 1923, xx, 415.

Anomalies of the obturator artery and their surgical importance. E. STINER. *Rev. de med. y cirug. de la Habana*, 1923, xxviii, 382. [596]

Arteriovenous aneurism of the thigh. A. VENOT, A. PARCELLER and L. MASSÉ. *J. de méd. de Bordeaux*, 1923, xcv, 448.

The use of physiotherapy in intermittent claudication. A. FIRSON. *Wratschebnoje Djelo*, 1922, v, 221. [597]

An uncommon case of multiple aneurisms of the limbs. G. CECCARELLI. *Ann. ital. di chir.*, 1923, ii, 748.

Blood and Transfusion

Blood and serum examinations immediately before and after roentgen irradiation. E. HERZFELD and H. R. SCHINZ. *Strahlentherapie*, 1923, xv, 84. [597]

Hæmorrhagic complications following the use of bismuth salts. MARAÑÓN. *Arch. de med., cirug. y especial.*, 1923, xi, an. de la acad. méd.-quirúrg. españ., 379. [597]

Hæmorrhagic purpura. H. Z. GIFFIN and J. K. HOLLOWAY. *Med. Clin. N. Am.*, 1923, vii, 241. [597]

A new method for accurately determining the clotting time of the blood. M. F. PETERSON and C. A. MILLS. *Arch. Int. Med.*, 1923, xxxii, 188. [597]

Regarding the existence of more than four iso-agglutinin groups in human blood. C. G. GUTHRIE and J. G. HUCK. *Bull. Johns Hopkins Hosp., Balt.*, 1923, xxxiv, 38, 80, 128. [598]

A review of professional donors. H. Z. GIFFIN and S. F. HAINES. *J. Am. M. Ass.*, 1923, lxxxi, 532. [599]

Transfusion of whole blood. L. JUBÉ. *Gynécologie*, 1923, xxii, 259.

A citrate method of blood transfusion devised to minimize post-transfusion reactions. F. W. LUNEY. *Canadian M. Ass. J.*, 1923, xliii, 589. [599]

Fatal anaphylaxis following blood transfusion. G. L. CARRINGTON and W. E. LEE. *Ann. Surg.*, 1923, lxxvii, 1. [599]

Prolonged intravenous infusion and the clinical determination of venous pressure. W. G. PENFIELD and D. TEPITSKY. *Arch. Surg.*, 1923, vii, 111. [599]

Hypertension and surgery. G. JEANNENEY. *Rev. de chir., Par.*, 1923, xlii, 468.

Lymph Vessels and Glands

Elephantiasis: a clinical review and an attempt at experimental reproduction. G. D. MAHON. *Am. J. M. Sc.*, 1923, clxv, 875. [600]

Surgical cure in a case of elephantiasis of the lower extremity. L. DE GAETANO. *Ann. ital. di chir.*, 1923, ii, 685.

SURGICAL TECHNIQUE

Operative Surgery and Technique; Postoperative Treatment

Autoplasties with the use of skin flaps with long pedicles. L. GERNEZ. *Bull. et mém. Soc. de chir. de Par.*, 1923, xlix, 411. [601]

The combined physico-surgical treatment of keloid. KROMAYER. *Deutsche med. Wchnschr.*, 1923, xlix, 280. [601]

Postoperative tetanus. Also a contribution to the casuistics of congenital mesenteric defects and extensive resections of the small intestine. K. WOHLGEMUTH. *Arch. f. klin. Chir.*, 1923, cxxiii, 409. [601]

Is digipuratum a prophylactic agent against postoperative pulmonary complications? W. J. KLUG. *Deutsche Ztschr. f. Chir.*, 1923, clxxvii, 236. [602]

Antiseptic Surgery; Treatment of Wounds and Infections

Carrel-Dakin treatment—an improvement in adjusting the tubes in superficial wounds. H. LILIENTHAL. *Mil. Surgeon*, 1923, liii, 162.

Polyvalent antigangrene serum. A. SORDELLI. *Rev. Asoc. méd. argent.*, 1923, xxxvi, 82.

Blood concentration changes in extensive superficial burns and their significance for systemic treatment. F. P. UNDERHILL, G. L. CARRINGTON, R. KAPSINOW, G. T. PACK, and others. *Arch. Int. Med.*, 1923, xxxii, 31. [602]

Specific-non-specific therapy of staphylococcosis. K. KOCH. *Deutsche med. Wchnschr.*, 1923, xlix, 678.

The treatment of tetanus. M. CHUDOVSKY. *Orvosi hetil.*, 1923, lxvii, 13. [602]

Anæsthesia

The use of caffeine in solutions for spinal anæsthesia. ALAMARTINE. *Lyon chir.*, 1923, xx, 363.

Death following anæsthesia of the nervus mandibularis. M. REINMOELLER. *Vierteljahrsschr. f. Zahnheilk.*, 1923, xxxviii, 517.

Regarding the technique employed to induce trunk anæsthesia of the superior maxillary nerve by the posterior palatine duct. J. U. CARREA. *Semana méd.*, 1923, xxx, 744.

Observations on anæsthesia, with a report of 1,500 consecutive cases. B. RAPOPORT. *Boston M. & S. J.*, 1923, clxxxix, 169.

PHYSICO-CHEMICAL METHODS IN SURGERY**Roentgenology**

Roentgen-ray stereoscopy. R. KEGERREIS. *Arch. Radiol. & Electrotherapy*, 1923, xxviii, 105.

The stimulating and paralyzing effect of the X-rays. W. E. SCHALL. *Arch. Radiol. & Electrotherapy*, 1923, xxviii, 124.

Observations on X-ray cancer. J. H. DIBLE. *Arch. Radiol. & Electrotherapy*, 1923, xxviii, 65.

Twentieth century advances in cancer research. E. F. SMITH. *J. Radiol.*, 1923, iv, 295.

X-rays and X-ray apparatus—an elementary course. J. K. ROBERTSON. *J. Radiol.*, 1923, iv, 326.

Biological reactions of X-rays: effect of radiation on the nitrogen and salt metabolism. C. F. CORI and G. W. PUCHER. *Am. J. Roentgenol.*, 1923, x, 726.

Miscellaneous

A question of size. W. J. MAYO. *Ann. Surg.*, 1923, lxxviii, 140. [603]

The results of diathermy. C. A. CASTANO and J. F. M. GÓMEZ. *Semana méd.*, 1923, xxx, 893. [606]

The physiological effects exerted by high-frequency currents. F. DE KRAFT. *N. York M. J. & Med. Rec.*, 1923, cxviii, 347.

MISCELLANEOUS**Clinical Entities—General Physiological Conditions**

The septic factor in the three great plagues. W. J. MAYO. *Canadian M. Ass. J.*, 1923, xiii, 549. [607]

Coincidence of two tumors in the same person: hypernephroma and pancreatic epithelioma. PIETTE. *Bull. et mém. Soc. anat. de Par.*, 1923, xciii, 508.

Carcinogenous components in the tar of Heidelberg gas works. TEUTSCHLAENDER. *Ztschr. f. Krebsforsch.*, 1923, xx, 111.

Further research on the relation of carcinoma to infection. W. M. F. ROBERTSON. *Lancet*, 1923, ccv, 330. [608]

Treatment of cancer. BOUDREAU. *J. de méd. de Bordeaux*, 1923, xcv, 516.

Studies in experimental traumatic shock. VIII. The influence of morphine on the blood pressure and alkali reserve in traumatic shock. M. CATTELL. *Arch. Surg.*, 1923, vii, 96. [608]

An electrochemical interpretation of shock and exhaustion. G. W. CRILE. *Surg., Gynec. & Obst.*, 1923, xxxvii, 342.

A case of acromegaly with pluriglandular insufficiency. J. CAUSSIMON. *J. de méd. de Bordeaux*, 1923, xcv, 444.

General Bacterial, Mycotic, and Protozoan Infections

Actinomycosis. H. A. BRUCE. *Ann. Surg.*, 1923, lxxviii, 294.

Distribution of actinomycosis in the United States. S. H. SANFORD. *J. Am. M. Ass.*, 1923, lxxxi, 655.

Surgical Pathology and Diagnosis

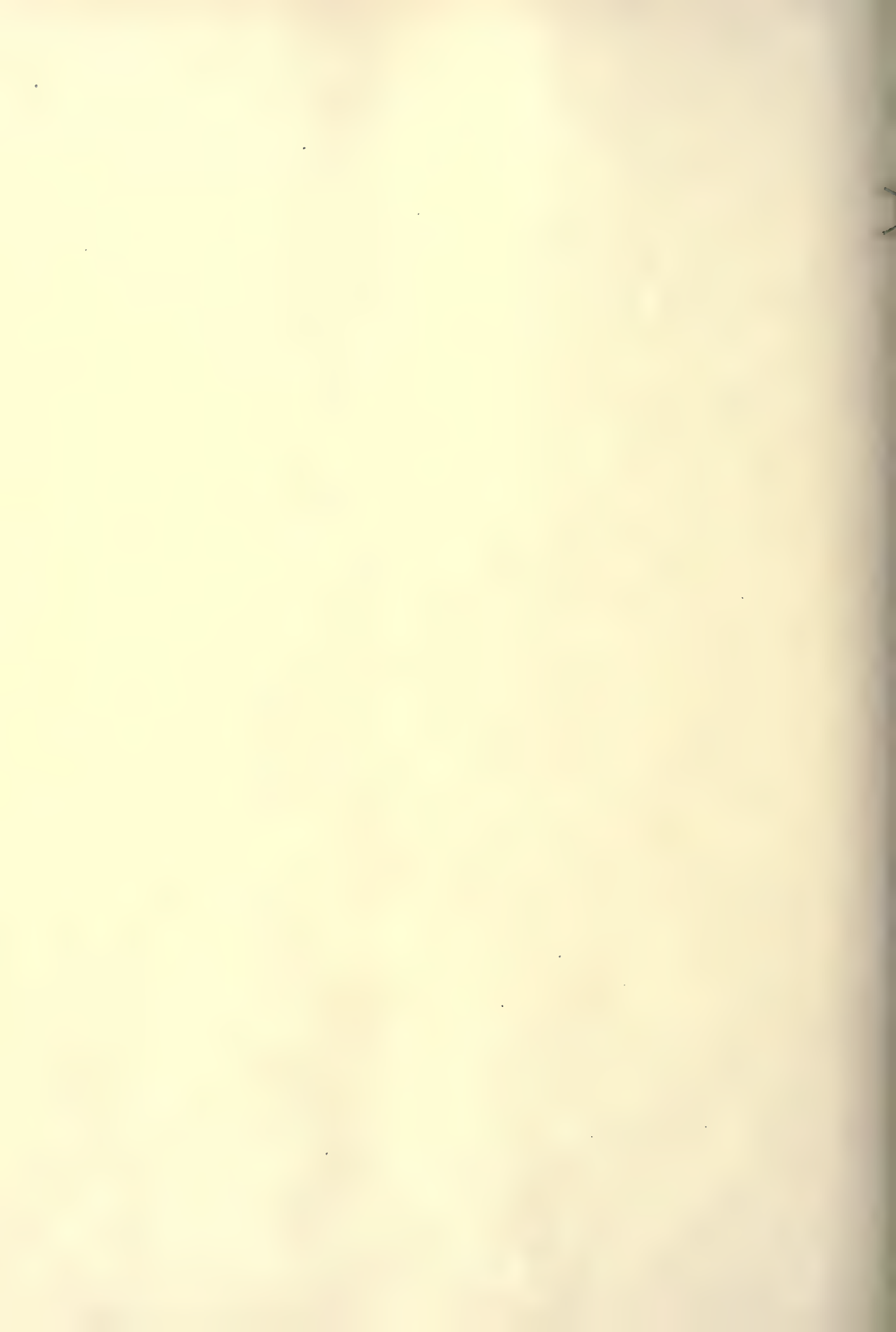
Cellular immunity and susceptibility to disease. A. THEILHABER and H. RIEGER. *Deutsche Ztschr. f. Chir.*, 1922, clxxiii, 78.

The cytologic diagnosis of neoplasms. W. C. MACCARTY. *J. Am. M. Ass.*, 1923, lxxxi, 519. [608]

Medical Jurisprudence

Responsibility of the surgeon in the after-care of fractured bones. Huber vs. Hamley, 210 Pac., p. 769. [609]





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